BI on a Budget: You don't need new analytic tools to gain insight into your business. Learn how to make the most of what you already have. PAGE 23

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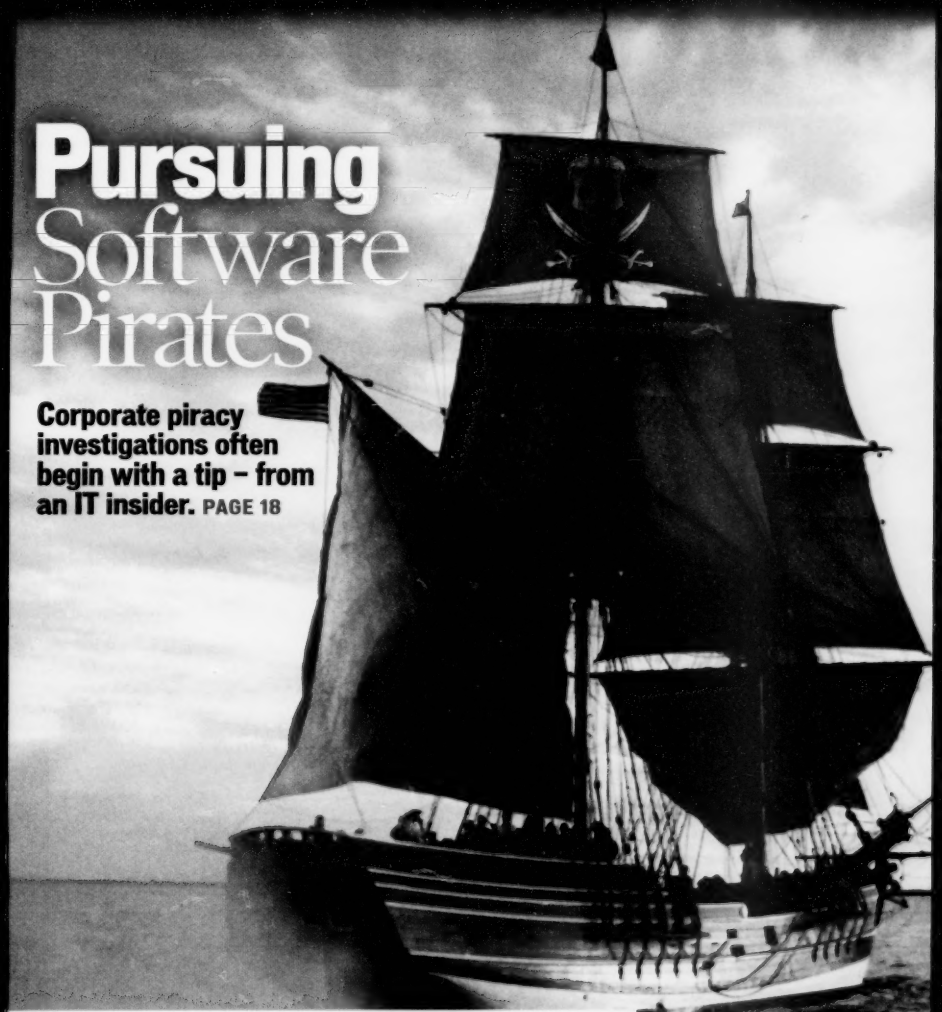

Pursuing Software Pirates

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SEPTEMBER 14, 2009
VOL. 43, NO. 28 $5/COPY

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WiMax, smart grids and social networks will transform today's cities. PAGE 28

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ratio scenario of 166 Intel 1U 2 socket servers to 14 BladeCenter HS22 servers and savings in energy costs, software license fees and other operating costs. Actual costs and savings will vary depending on individual

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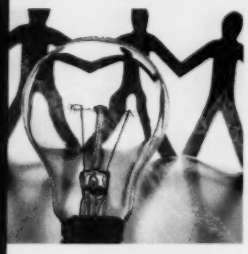

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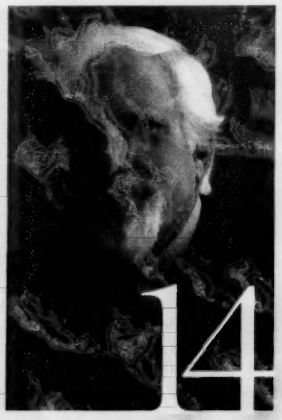

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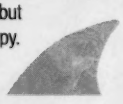

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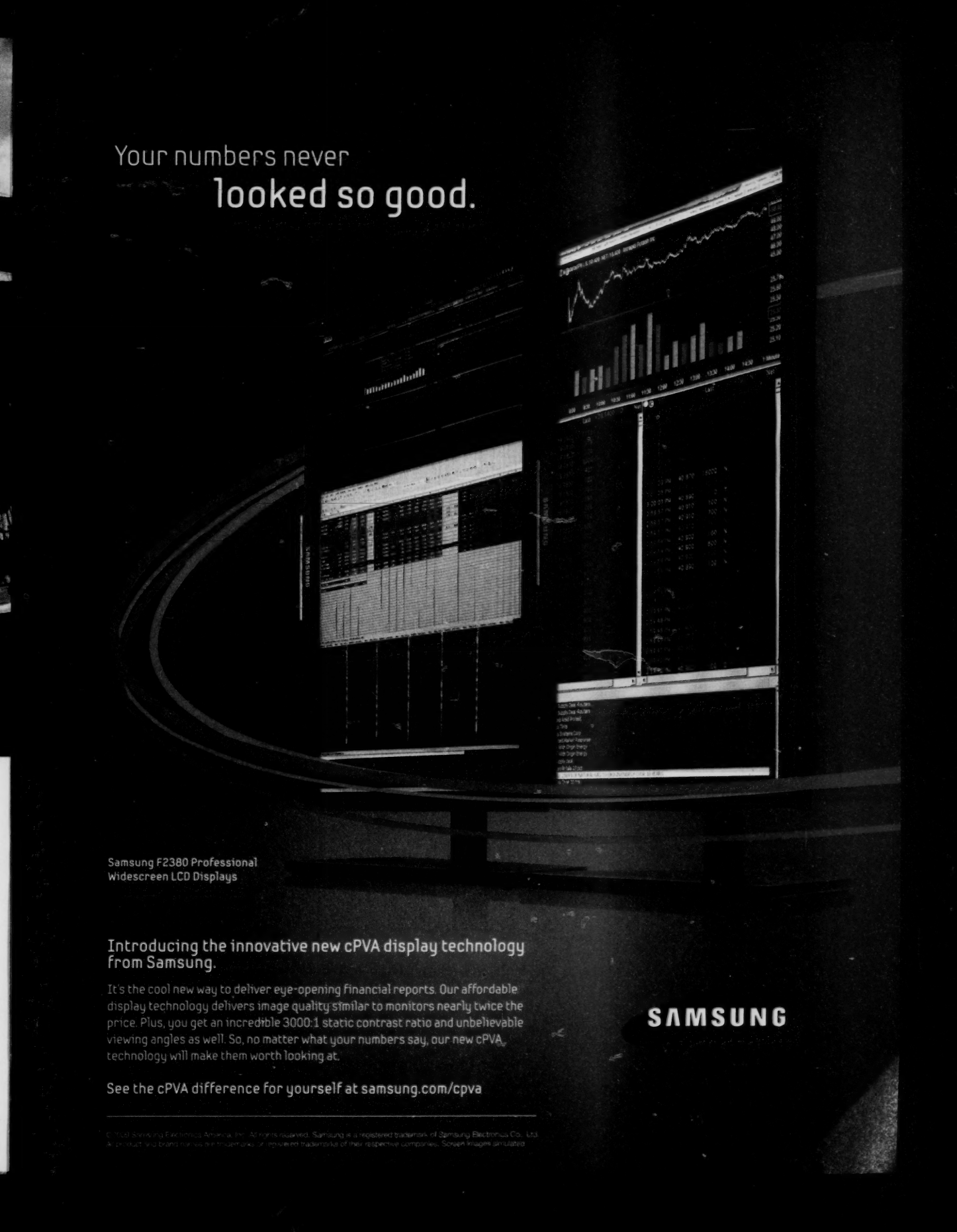
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■ ONLINE CHATTER

RESPONSES TO:

Microsoft Warns of Chaos if Word Sales Are Halted

Aug. 24, 2009

If a company is too big to let fail, then it's *too big* and it needs to feel the wrath of Sherman antitrust law. If a simple patent lawsuit against a company can cause massive disruption, that company is just too dang big. It's entirely appropriate for the government to intervene and restore sufficient competition so that a failure in one company or (worse) one product doesn't cause massive disruption.
■ **Submitted by:** *ricegf*

My open-source inclinations usually lead me to criticize Microsoft with relish. On this issue, however, I don't agree with the court's decision. Custom XML document utilities are not exactly unique, and it doesn't look like Microsoft actually used i4i's code; it just had a very similar idea. The idea is a good one, and one that any word processing utility should have.
■ **Submitted by:** *Tyrsten*

RESPONSES TO:

The iPhone That Ate My Travel Checklist

Aug. 29 2009

This is all wishful thinking on Mike Elgan's part. I took a six-week road trip and had high hopes for using my iPhone and Google Maps. But unless you are staying in major metropolitan areas, you can forget it. AT&T service leaves much to be desired, and an iPhone has a hard time even being a phone in much of the Western U.S. The GPS is nifty, but without the map to tell you where the blue dot is, useless.
■ **Submitted by:** *Anonymous*

Mike Elgan shouldn't get carried away. I slimmed down on what I carried on my last trip. But I forgot the car charger, and the phone went dead in the midst of urban sprawl in the middle of the night, with no chain store in sight.
■ **Submitted by:** *Chief-Plasma*

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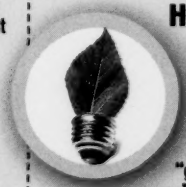
The Unspoken Truth About Managing Geeks

OPINION: The stereotypes that lump IT professionals together are misguided. It's actually the conditions that surround the IT pros that are stereotypical, and the geeks are just reacting to those conditions the way they always react – logically.

Even AT&T Says AT&T Can't Handle The iPhone

OPINION: Users have complained all along about Apple's exclusive iPhone agreement with AT&T. Last week, AT&T itself started complaining, going so far as to blame its iPhone users for its lousy service. So, Mike Elgan asks, why did AT&T want the iPhone deal so badly to begin with?

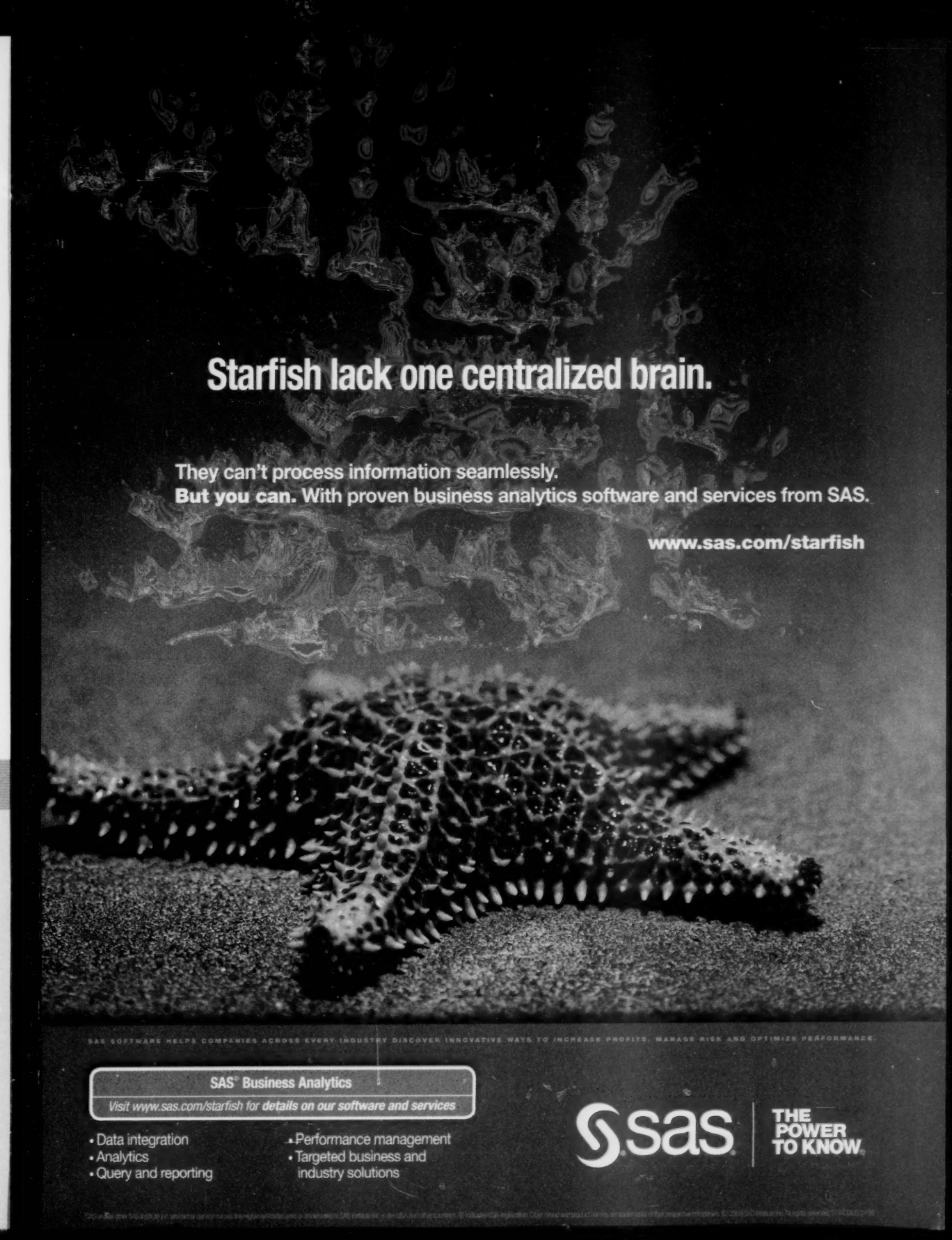


How to Get Green IT 'Cred'

You can take what you already know in areas as diverse as business intelligence and asset management and apply it in "green-hot" disciplines. But you'll need new skills as well.

Dual Monitors, Multiple Views

REVIEW: The innovative InterView display has a clever stand that lets you arrange two monitors in a variety of ways.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News Digest

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THE WEEK AHEAD

MONDAY: The Social Media for Government conference, sponsored by the Advanced Learning Institute, opens in Chicago.

TUESDAY: *Computerworld*'s Business Intelligence Perspectives Conference and Yankee Group's 4G World conference both open in Chicago. Also, Adobe Systems is scheduled to release its third-quarter financial results.

WEDNESDAY: Oracle and Palm are both expected to release their fiscal 2010 first-quarter results.

INTERNET APPLICATIONS

Google Move May Mark New Front in Browser War

SONY CORP.'S recent agreement to preinstall Google Inc.'s Chrome on its Vaio line of PCs could mark the start of a renewed push by the search leader to boost its browser business.

The move comes about a year after Google debuted the Chrome browser to great fanfare but then failed to meet the initial expectations of analysts.

"From the outside, the thought last year was that Google would push Chrome a lot more than it has," said Gartner Inc. analyst Ray Valdes, who had expected Chrome to have more than its current 2.9% share of the browser market a year after its launch last September.

"But with this deal, Google is signaling to the market and to competitors that it's taking a more traditional approach to marketing Chrome," he added. "Call it the Microsoftian approach to the market."

A Google spokesman said the company is exploring how to get Chrome on even more PCs.

Sheri McLeish, an analyst at Forrester Research Inc., said the move represents a change in strategy for Google, because such deals are "a really fast-track way to grow market share."

McLeish called the Sony agreement a milestone because Google was able to convince the PC maker that its browser is a legitimate contender against Microsoft's Internet Explorer, Apple's Safari and Mozilla's Firefox.

"To get the deal done, I'm sure Chrome had to go through some rigorous technical testing to make sure it was a viable browser," McLeish said. "It could pose tremendous risk to Sony if, for example, Chrome wasn't secure enough for consumers."

Valdes and McLeish both said that Google faces an uphill battle against Microsoft in the browser business even with the Sony deal. One barrier is IE's market share, which Web metrics firm Net Applications puts at 66.6%.

"In terms of real market adoption, [the Sony deal isn't] going to have a tremendous impact," Valdes said. "You can't make a frontal assault [on IE], not these days."

Any potential IE rival faces serious hurdles in the enterprise market, the analysts noted, since businesses are loath to switch their workers to a different browser.

— Gregg Keizer

CAREERS

Salaries Up, Jobs Down in Silicon Valley

THE NUMBER of high-tech jobs in Silicon Valley industries declined by 86,000, or 16.5%, between 2001 and 2008, according the U.S. Bureau of Labor Statistics. In a study on employment trends, the bureau identified 11 industries as high-tech employers in Silicon Valley and then assessed changes in their workforce and payroll numbers after the 2001 dot-com bust.

The BLS found that while payrolls in those industries increased by nearly 36% between 2001 and 2008, only three of the 11 industries – aerospace, pharmaceuticals and scientific research – boosted their Silicon Valley workforce numbers.

The results may suggest that those who "continue to be employed in Silicon Valley are a higher skill-set people," said Mark Roberts, executive director of the TechServe Alliance, an IT services trade group. "Silicon Valley may well be shedding individuals that possess lower skills [and do] work that can be performed in other areas of the country."

– PATRICK THIBODEAU

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SECURITY

Windows Bug Enables PC Hijacking, Microsoft Warns

MICROSOFT CORP. last week confirmed that a bug in Windows Vista, Windows Server 2008, and the release candidates of Windows 7 and Windows Server 2008 R2 could be used to hijack PCs.

The vulnerability in the Server Message Block (SMB) 2 network file- and print-sharing protocol that ships with those versions of the Windows operating system was first disclosed late last Monday, when a researcher posted exploit code.

The next day, Microsoft issued a security advisory confirming the bug and the fact that it could be used to "take complete control of an affected system."

Microsoft did note that the release to manufacturing, or RTM, editions of Windows 7 and Windows Server 2008 R2 are not affected, along with earlier versions of the operating system, including Windows 2000, XP and Server 2003.

However, the vulnerable release candidates have been widely distributed, with millions of users downloading Windows 7 RC when it was publicly available from early May through mid-August.

Microsoft recommended that users either disable SMB 2 by editing the Windows Registry — a task too daunting for most consumers — or block TCP Ports 139 and 445 at the firewall until a patch is available. However, the company acknowledged that blocking those ports would cripple several services and applications.

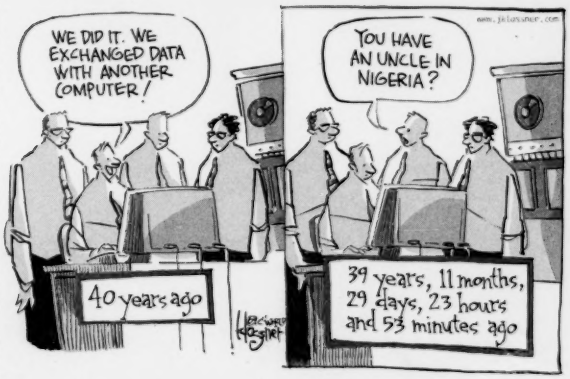
The Windows bug was disclosed the same day Microsoft delivered five critical updates that patched eight vulnerabilities in Windows, including one in the JavaScript engine that ships with every supported version of the operating system.

> **"An attacker who ... exploited this vulnerability could take complete control of an affected system.**
> MICROSOFT SECURITY ADVISORY

As expected, a patch for the recently revealed vulnerability in its Internet Information Services Web server wasn't ready in time for the monthly update.

— *Gregg Keizer*

BETWEEN THE LINES *By John Klossner*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YOU HAVE AN UNCLE IN NIGERIA?
39 years, 11 months, 29 days, 23 hours and 53 minutes ago

LAST WEEK

EMC Corp. opened a 495,000-square-foot R&D and support services facility in Bangalore, India, and announced plans to invest another $1.5 billion in India over the next five years.

Apple Inc. CEO Steve Jobs returned from a six-month medical leave to demonstrate updated iPhone and iPod software for analysts and reporters in San Francisco. Jobs received a liver transplant in April.

26 YEARS AGO: Osborne Computer declared bankruptcy, two years after producing what was regarded as the first portable computer – the 24-lb. Osborne I, which cost $1,795.

Global Dispatches

Fund Formed for Chinese Start-ups

BEIJING – Kai-Fu Lee, who resigned as president of Google Inc.'s China operation earlier this month, has founded an angel investment fund and plans to help out three to five new Chinese high-tech companies annually.

The fund, dubbed Innovation Works, launched with some $115 million (U.S.) provided by several IT vendors, including Taipei-based Foxconn Electronics Inc. and Lenovo Group Ltd. Steve Chen, a co-founder of YouTube Inc., is also an investor in Innovation Works.

The new company said the funds will be used to train young entrepreneurs and help them build Internet, mobile Internet and cloud computing companies.

Owen Fletcher,
IDG News Service

Telecom Firms Plan Joint Venture

LONDON – Deutsche Telekom AG and France Telecom SA plan to form a joint venture that would oversee their respective U.K. mobile communications networks – T-Mobile U.K. and Orange U.K.

The combined company would have about 28.4 million customers, or 37% of U.K. mobile subscribers, leapfrogging current market leader O2 U.K. Ltd., which reported 20.7 million customers at the end of June, the companies said.

The venture is expected to realize overall savings of more than £3.5 billion ($5.7 billion U.S.) by, among other things, closing some stores and "optimizing" the companies' customer service staffs.

Peter Sayer,
IDG News Service

BRIEFLY NOTED

The European Union has confirmed that its ombudsman received a complaint from Intel Corp. in July alleging that "procedural errors" were made by the European Commission during an antitrust investigation that led to a record fine of €1.06 billion ($1.44 billion U.S.) against the chip maker. Ombudsman P. Nikiforos Diamandouros said he will rule on the complaint later this month.

Agam Shah,
IDG News Service

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SECURITY

Microsoft Betrayed i4i, Say Court Documents

MICROSOFT CORP. marketed i4i Inc.'s XML software to potential customers at the same time it planned to drive the small company out of business by infringing on its patent for the technology, according to court documents filed last week.

In a brief submitted to the U.S. Court of Appeals for the Federal District in Washington, Toronto-based i4i argued that an injunction blocking Microsoft from selling current versions of Word should stand.

Federal Judge Leonard Davis issued the injunction in August, barring Microsoft from selling Word 2003 and Word 2007 after Oct. 10. The decision came about three months after a Texas jury found that Microsoft had illegally used patented i4i technology to build XML features into its word processing software.

The jury had awarded i4i $200 million, but Davis increased the amount to just under $300 million when he issued the injunction.

Earlier this month, the three-judge appeals panel decided to stay the injunction while it weighs Microsoft's appeal.

I4i filed the patent infringement lawsuit in 2007. The new i4i brief charges that in 1991, "at the same time Microsoft was praising the improved functionality that i4i's product brought to Word, and touting i4i as a 'Microsoft Partner,' Microsoft was working behind i4i's back to make i4i's product obsolete."

According to the brief, just days after a 1991 meeting in which Microsoft had sought to find ways to work with i4i, Microsoft executives discussed XML plans for Word that would eventually "make obsolete any competitive attempts by third parties to conquer that market."

Microsoft must file its rebuttal to i4i's brief by Sept. 14; the appeals court is slated to hear oral arguments from the two sides on Sept. 23.

Asked to comment on i4i's briefs, a Microsoft spokesman said, "We're looking forward to the hearing on the merits of our appeal."

— Gregg Keizer

Short Takes

Microsoft Corp. has founded a new open-source group dubbed the CodePlex Foundation, whose aim is promote joint open-source projects by open-source and proprietary software companies. Microsoft contributed $1 million in funding for the foundation.

Mozilla Corp. issued patches for 10 vulnerabilities in Firefox 3.5, mostly to fix stability problems in the browser and JavaScript rendering engines. Nine of the bugs were labeled "critical."

Oracle Corp. ended its silence on its plans for Sun Microsystems Inc.'s Unix-based hardware. In ads, Oracle promises to spend more "than Sun does now" on Sparc and Solaris development while boosting service and support.

IBM has named Pat Toole CIO of an IT operation whose centralization was advanced under Mark Hennessy, who now heads strategy and transformation for IBM's sales and distribution operation.

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SECURITY

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As expected, a patch for the recently revealed vulnerability in its Internet Information Services Web server wasn't ready in time for the monthly update.

— *Gregg Keizer*

BETWEEN THE LINES

By John Klossner

WE DID IT. WE EXCHANGED DATA WITH ANOTHER COMPUTER!
YOU HAVE AN UNCLE IN NIGERIA?
40 years ago
39 years, 11 months, 29 days, 23 hours and 53 minutes ago

BENCHMARKS LAST WEEK

EMC Corp. opened a 495,000-square-foot R&D and support services facility in Bangalore, India, and announced plans to invest another $1.5 billion in India over the next five years.

Apple Inc. CEO Steve Jobs returned from a six-month medical leave to demonstrate updated iPhone and iPod software for analysts and reporters in San Francisco. Jobs received a liver transplant in April.

26 YEARS AGO: Osborne Computer declared bankruptcy, two years after producing what was regarded as the first portable computer – the 24-lb. Osborne I, which cost $1,795.

Global Dispatches

Fund Formed for Chinese Start-ups

BEIJING – Kai-Fu Lee, who resigned as president of Google Inc.'s China operation earlier this month, has founded an angel investment fund and plans to help out three to five new Chinese high-tech companies annually.

The fund, dubbed Innovation Works, launched with some $115 million (U.S.) provided by several IT vendors, including Taipei-based Foxconn Electronics Inc. and Lenovo Group Ltd. Steve Chen, a co-founder of YouTube Inc., is also an investor in Innovation Works.

The new company said the funds will be used to train young entrepreneurs and help them build Internet, mobile Internet and cloud computing companies.

Owen Fletcher,
IDG News Service

Telecom Firms Plan Joint Venture

LONDON – Deutsche Telekom AG and France Telecom SA plan to form a joint venture that would oversee their respective U.K. mobile communications networks – T-Mobile U.K. and Orange U.K.

The combined company would have about 28.4 million customers, or 37% of U.K. mobile subscribers, leapfrogging current market leader O2 U.K. Ltd., which reported 20.7 million customers at the end of June, the companies said.

The venture is expected to realize overall savings of more than £3.5 billion ($5.7 billion U.S.) by, among other things, closing some stores and "optimizing" the companies' customer service staffs.

Peter Sayer,
IDG News Service

BRIEFLY NOTED

The European Union has confirmed that its ombudsman received a complaint from Intel Corp. in July alleging that "procedural errors" were made by the European Commission during an antitrust investigation that led to a record fine of €1.06 billion ($1.44 billion U.S.) against the chip maker. Ombudsman P. Nikiforos Diamandouros said he will rule on the complaint later this month.

Agam Shah,
IDG News Service

SECURITY

Microsoft Betrayed i4i, Say Court Documents

MICROSOFT CORP. marketed i4i Inc.'s XML software to potential customers at the same time it planned to drive the small company out of business by infringing on its patent for the technology, according to court documents filed last week.

In a brief submitted to the U.S. Court of Appeals for the Federal District in Washington, Toronto-based i4i argued that an injunction blocking Microsoft from selling current versions of Word should stand.

Federal Judge Leonard Davis issued the injunction in August, barring Microsoft from selling Word 2003 and Word 2007 after Oct. 10. The decision came about three months after a Texas jury found that Microsoft had illegally used patented i4i technology to build XML features into its word processing software.

The jury had awarded i4i $200 million, but Davis increased the amount to just under $300 million when he issued the injunction.

Earlier this month, the three-judge appeals panel decided to stay the injunction while it weighs Microsoft's appeal.

I4i filed the patent infringement lawsuit in 2007. The new i4i brief charges that in 1991, "at the same time Microsoft was praising the improved functionality that i4i's product brought to Word, and touting i4i as a 'Microsoft Partner,' Microsoft was working behind i4i's back to make i4i's product obsolete."

According to the brief, just days after a 1991 meeting in which Microsoft had sought to find ways to work with i4i, Microsoft executives discussed XML plans for Word that would eventually "make obsolete any competitive attempts by third parties to conquer that market."

Microsoft must file its rebuttal to i4i's brief by Sept. 14; the appeals court is slated to hear oral arguments from the two sides on Sept. 23.

Asked to comment on i4i's briefs, a Microsoft spokesman said, "We're looking forward to the hearing on the merits of our appeal."

— Gregg Keizer

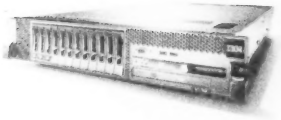
Short Takes

■ **Microsoft Corp. has founded a new open-source group dubbed the CodePlex Foundation, whose aim is promote joint open-source projects by open-source and proprietary software companies. Microsoft contributed $1 million in funding for the foundation.**

■ **Mozilla Corp. issued patches for 10 vulnerabilities in Firefox 3.5, mostly to fix stability problems in the browser and JavaScript rendering engines. Nine of the bugs were labeled "critical."**

■ **Oracle Corp. ended its silence on its plans for Sun Microsystems Inc.'s Unix-based hardware. In ads, Oracle promises to spend more "than Sun does now" on Sparc and Solaris development while boosting service and support.**

■ **IBM has named Pat Toole CIO of an IT operation whose centralization was advanced under Mark Hennessy, who now heads strategy and transformation for IBM's sales and distribution operation.**



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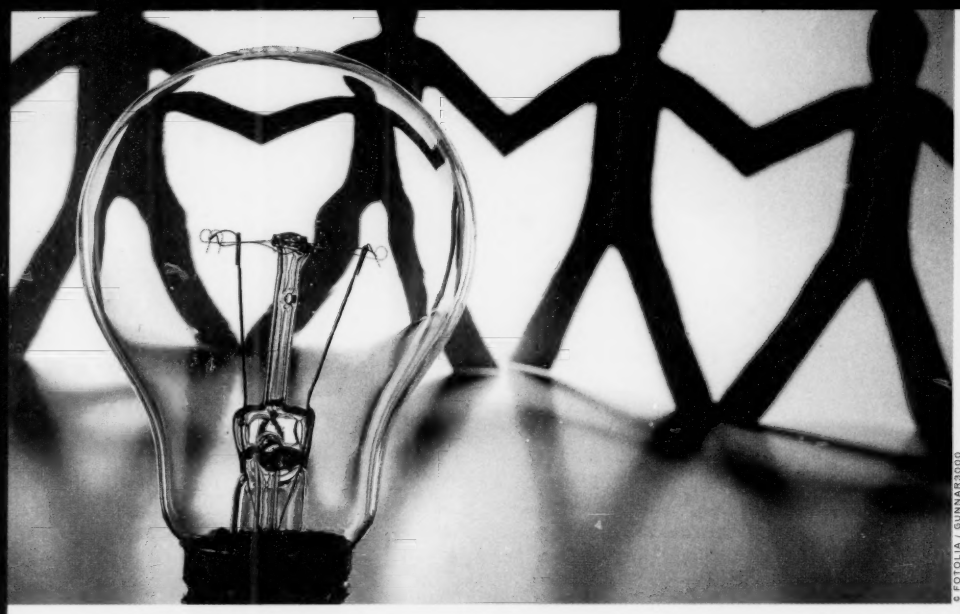

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■ NEWS ANALYSIS

Finding the Stars With Bright Ideas

Companies are using collaboration tools to tap the brains of experts in cubicles all over the world. By Matt Hamblen

FINDING THE right employees to meet key challenges has long been a conundrum for corporate executives and project managers.

In a big corporation, the expertise needed to fix a stumbling marketing program or jump-start a product development project could be hidden anywhere within a workforce whose ranks could number more than 100,000.

Some multinational companies, like The Procter & Gamble Co. and Cisco Systems Inc., are giving managers a variety of options — from high-definition videoconferencing to instant messaging and wikis — to help them find people with the skills they need, wherever those people may be.

In fact, IT managers at P&G and Cisco have been sharing information for about seven years to assist each other in separate efforts to implement collaboration tools from a variety of vendors, including Cisco.

The companies quickly met their initial goals of cutting travel costs and easing the corresponding wear and tear on their workers, according to managers. But they also got an unexpected bonus by gaining the ability to more easily find ideas and expertise previously hidden in cubicles located deep within office buildings around the world.

"We connect in clicks, with video anywhere and work everywhere, so work is not a place but something you do," said Laurie Heltsley, director of global business services at Cincinnati-based P&G. "The ultimate [intellectual property] we have is [our] people."

Since P&G has 138,000 employees in 80 countries, collaboration tools have become a key business driver for the $80 billion consumer products giant. "It is an absolute necessity to be able to collaborate every day. We have a mandate to brainstorm, to listen, to innovate where competition is fierce," Heltsley said.

P&G discovered early on in the collaboration project that its research and development teams could tap expertise found throughout the corporation, she said.

The company wouldn't disclose the exact cost savings it has realized by using collaboration tools, but Heltsley estimated that P&G has saved about $4 for every $1 invested in 70 high-end telepresence systems it started installing worldwide two years ago. The high-definition systems are used four times as often as earlier videoconferencing products were.

The company is now looking to expand its collaboration capabilities, she said. Among other things, P&G hopes to try out Cisco's new Enterprise Collaboration Platform, which was unveiled this month and is slated to enter a beta-test period before the end of the year, she added.

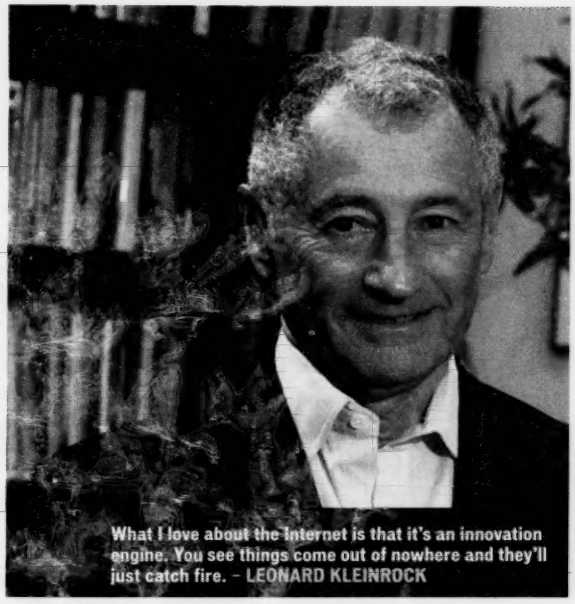
Craig Mathias, an analyst at Farpoint Group, said the interest expressed by large companies like P&G in expanding their use of collaboration tools helps prove the value of the concept.

"What really defines us as humans is communication and our ability to work together in groups," said Mathias, who has followed collaboration tools since the early 1990s, when they were called groupware. "Collaboration is all about group productivity anytime and anywhere, and of course made better with mobile devices. The whole idea behind collaboration tools is practically primal."

At Cisco, CEO John Chambers uses a video blog to communicate with employees. Thousands of videos are also posted on an internal channel called "C Vision" that's used to share insights and information with workers, said Rick Hutley, vice president of the company's Internet business solutions group.

He said the tools offer Cisco "a huge opportunity to leverage skills and expertise" throughout the company. "We have virtual experts because we don't have enough experts to be in enough places enough of the time," he added.

Hutley estimated Cisco's total savings from using collaboration tools during fiscal 2008 at $691 million but added that "the [dollar] savings is minor" compared to the value of tapping into internal expertise. ■



What I love about the Internet is that it's an innovation engine. You see things come out of nowhere and they'll just catch fire. – LEONARD KLEINROCK

The Net at 40: What's Next?

Experts say the future of the Internet is still limitless — and hard to predict.

By Sharon Gaudin

WHEN THE Internet hit 40 years old — which, by many accounts, it did earlier this month — listing the epochal changes it has brought to the world was an easy task.

It delivers e-mail, instant messaging, e-commerce and entertainment applications to billions of people.

Businesses stay in touch with customers using the Twitter and Facebook online social networks. CEOs of major corporations blog about their companies and their activities. Astronauts have even used Twitter during space shuttle missions.

On Sept. 2, 1969, a team of computer scientists created the first network connection, a link between two computers at the University of California, Los Angeles. But according to team member Leonard Kleinrock, although the Internet is turning 40, it's still far from its middle age.

"The Internet has just reached its teenage years," said Kleinrock, now a distinguished professor of computer science at UCLA. "It's just beginning to flex its muscles. The fact that it's just gotten into its dark side — with spam and viruses and fraud — means it's like an [unruly] teenager. That will pass as it matures."

The next phase of the Internet will likely bring more significant changes to daily life — though it's still unclear exactly what those may be.

"We're clearly not through the evolutionary stage," said Rob Enderle, president and principal analyst at Enderle Group. "It's going to be taking the world and the human race in a quite different direction. We just don't know what the direction is yet. It may save us. It may doom us. But it's certainly going to change us."

Marc Weber, founding curator of the Internet History Program at the Computer History Museum in Mountain View, Calif., suggested that the Internet's increasing mobility will drive its growth in the coming decades.

The mobile Internet "will show you things about where you are," he said. "Point your mobile phone at a billboard, and you'll see more information." Consumers will increasingly use the Internet to immediately pay for goods, he added.

Sean Koehl, technology evangelist in Intel Corp.'s Intel Labs research unit, expects that the Internet will someday take on a much more three-dimensional look.

"[The Internet] really has been mostly text-based since its inception," he said. "There's been some graphics on Web pages and animation, but bringing lifelike 3-D environments onto the Web really is only beginning.

"Some of it is already happening … though the technical capabilities are a little bit basic right now," Koehl added.

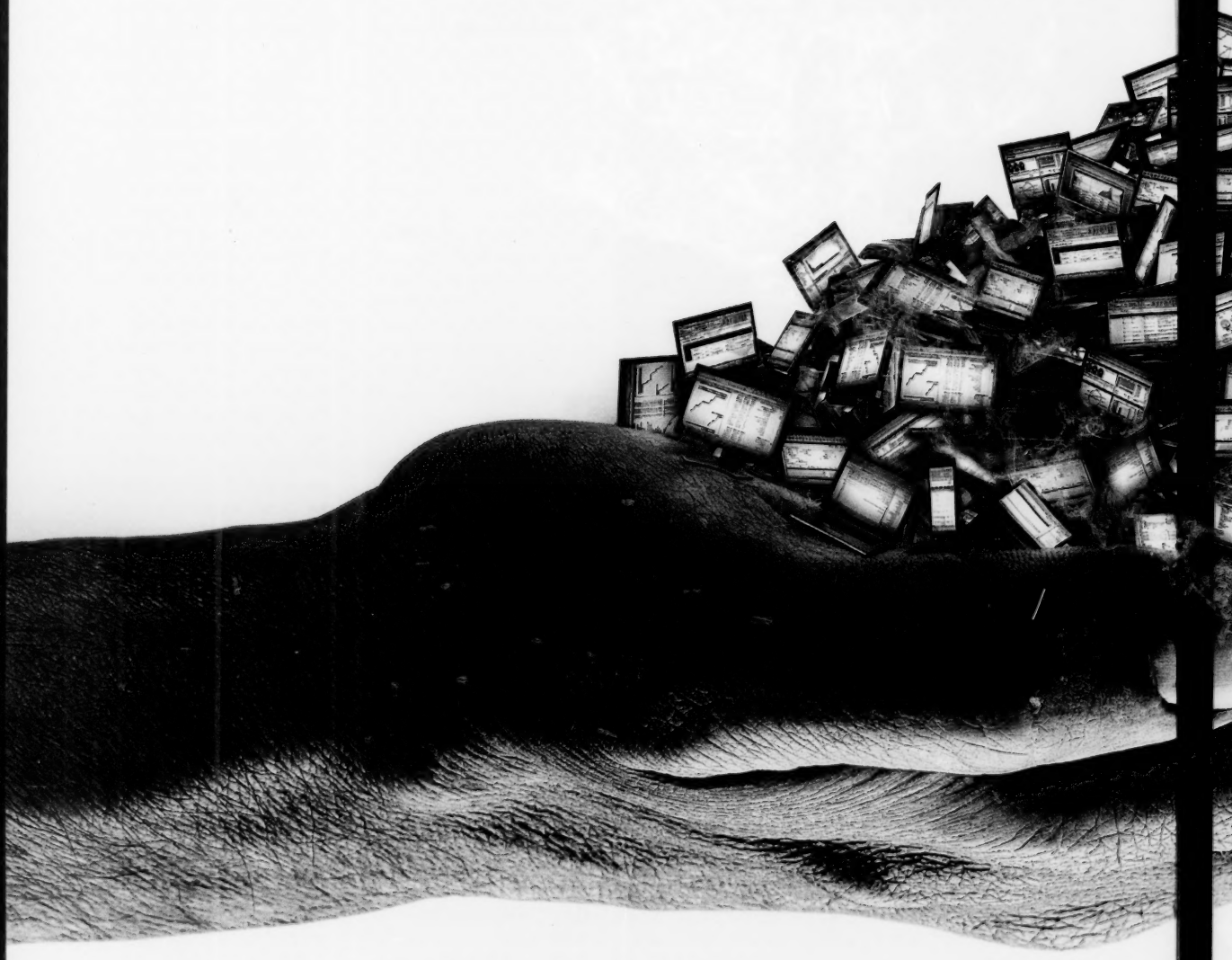
The beginnings of the Internet aroused much apprehension among the developers who gathered to watch the test of the first network — which included a new, state-of-the-art Honeywell DDP 516 computer about the size of a telephone booth, a Scientific Data Systems computer and a 50-foot cable connecting the two. The team on hand included engineers from UCLA, top technology companies like GTE, Honeywell and Scientific Data Systems, and government agencies like the Defense Advanced Research Projects Agency.

"Everybody was ready to point the finger at the other guy if it didn't work," Kleinrock joked. "We were worried that the [Honeywell] machine, which had just been sent across the country, might not operate properly when we threw the switch. We were confident the technology was secure. I had simulated the concept of a large data network many, many times — all the connections, hop-by-hop transmissions, breaking messages into pieces. The mathematics proved it all, and then I simulated it. It was thousands of hours of simulation."

As with many complex and historically significant inventions, there's some debate over the true date of the Internet's birth. Some say it was that September day in '69. Others peg it at Oct. 29 of the same year, when Kleinrock sent a message from UCLA to a node at the Stanford Research Institute in Palo Alto, Calif. Still others argue that the Internet was born when other key events took place.

Kleinrock, who received a 2007 National Medal of Science, said both 1969 dates are significant. "If Sept. 2 was the day the Internet took its first breath," he said, "we like to say Oct. 29 was the day the infant Internet said its first words." ■

SIMPLICIT



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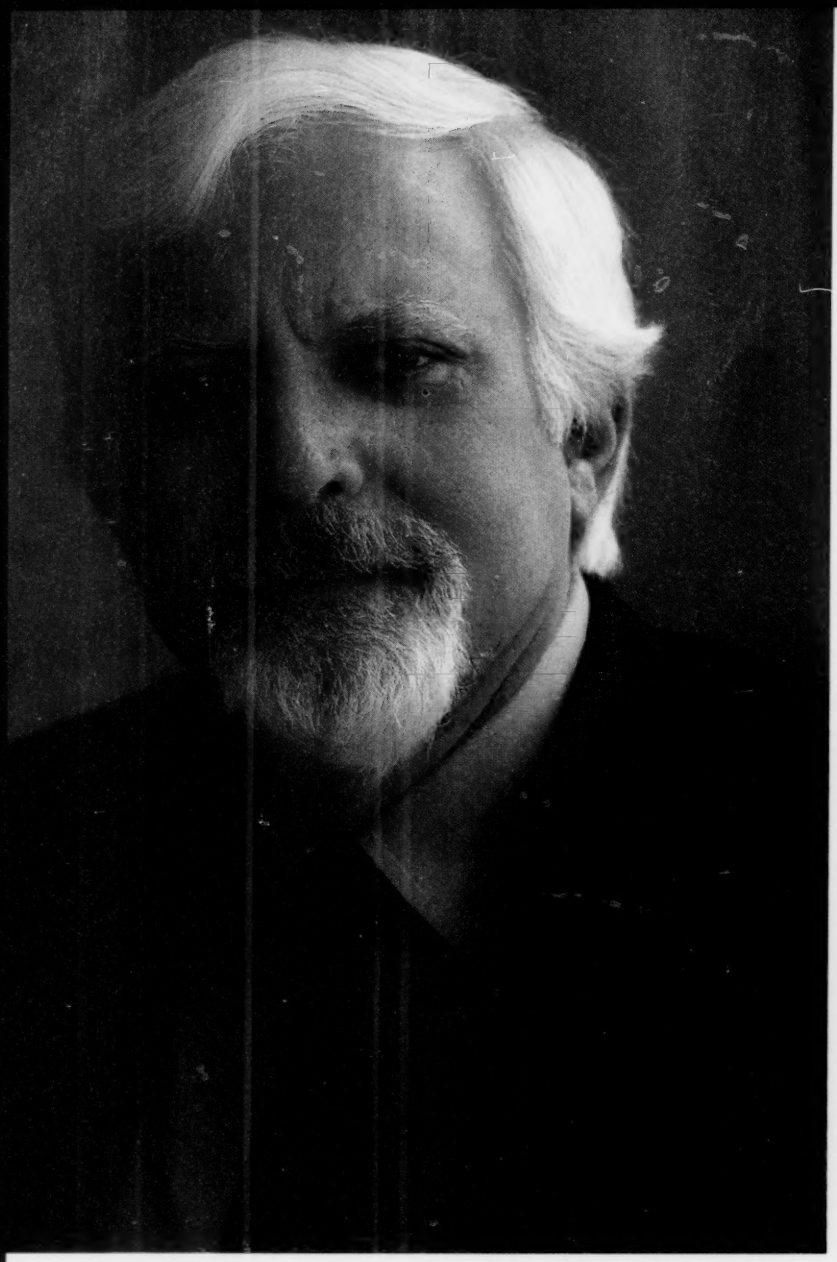

Dossier

Name: David Leinweber

Title: Haas Fellow in finance, and founding director of the Center for Innovative Financial Technology

Organization: University of California, Berkeley

Location: San Francisco Bay area

Favorite nonwork pastimes: "Photography; crimes against golf."

Favorite movie: *Dr. Strangelove.* "Gentlemen! You can't fight here! This is the War Room!"

Philosophy in a nutshell: "Avoid philosophies that fit in nutshells."

Pet peeves: "Black helicopters, dysfunctional government (I live in California), recordings that say, 'You must dial a 1.' "

■ THE GRILL

David Leinweber

The professor and **high-tech entrepreneur** talks about who was to blame for **Wall Street's meltdown** and what the future holds for **quantitative analysts.**

To some degree, the financial whizzes known as quantitative analysts, or "quants," who developed the highly complex securities and derivatives instruments at the heart of Wall Street's downfall last year, share some of the blame in the ongoing global financial crisis. Many quants are mathematics and physics Ph.D.s from MIT and other top universities who were lured by Wall Street's riches over the past couple of decades; they utilized mathematical equations and computer programs to develop exotic trading instruments, which ultimately brought the world's financial markets to their knees.

UC Berkeley professor David Leinweber, who founded two financial technology firms, recently wrote about quants in his book Nerds on Wall Street: Math, Machines and Wired Markets *(John Wiley & Sons Inc., 2009).*

How was technology used and abused in the run-up to what you refer to as "The Great Mess of '08"? The stock side of Wall Street is pretty simple by comparison to more complex financial instruments. These people built a mathematical house of cards. It became obvious that they didn't know what they were doing. If another technology had

Continued on page 16

NEC GIVES SOFITEL WHAT GUESTS EXPECT– RIGHT SERVICE, RIGHT TIME.

Thanks to technology and a partnership with NEC, Sofitel Melbourne has some pretty happy customers. A new digital signage solution has replaced posted hotel information with a total digital installation that can provide pertinent and timely information to specific audiences. "NEC had a perfect solution for us," says general manager, Clive Scott. Digital signage cuts costs, helps build branding, and is helping Sofitel turn customers into return customers.

Clive Scott
General Manager
Sofitel Melbourne

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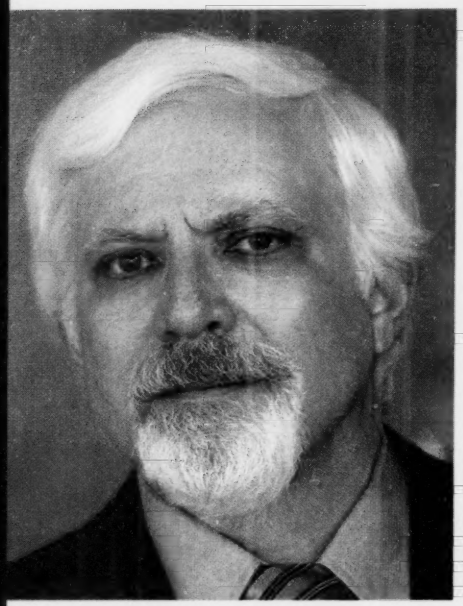

"A plane crashes and we have an investigation. Why isn't the government taking a look at [the stock slide] to figure out what went wrong?

Continued from page 14

screwed up — say, biohazards — Long Island, Connecticut and large parts of the New York metro area would probably be empty now.

The key problem is that no one knew what all of these things — i.e., collateralized mortgage and debt obligations — were worth. With stocks and such, there's a bid and an ask price. You had none of that in these exotic securities, which we now call toxic assets.

Was data from risk management systems used by Wall Street firms overlooked or ignored by key decision-makers? Or did they not know enough about these toxic assets to be able to model them effectively? It was either missing, ignored or otherwise not taken to heart. Why aren't we having an investigation of this? A plane crashes, and we have an investigation. Why isn't the government taking a look at this to figure out what went wrong? Why isn't this a higher priority?

Were quants responsible on some level for the market meltdown? Absolutely. There were no position limits; you could make as much of it as you wanted. For instance, there are only so many stocks of Apple you can buy. With mortgage-backed securities, you could just keep making them.

What has this all meant for quants? For instance, have some of the best minds fled Wall Street? To an extent. I think the stock quants — which is the world that I've been in — are just horrified. As I stated in the book, it's like coming home and discovering that your neighbors were running a meth lab that exploded and set your dog on fire.

The best minds aren't going to Wall Street, which is probably a good thing. I know a lot of people who were drawn to it from the engineering side. One MIT guy I know was working for a software freelancing firm. Then he went to work for [Goldman Sachs], and he thought, "The work isn't any harder and the challenges aren't any more complex, but the paychecks have an extra zero or two on them. I think I'm going to stick around." The money that people make compared to the value of what they provide to society is crazy. But they're close to the money river.

We've seen financial markets, including options and futures exchanges, become highly automated in the past 10 years. Will we reach a point where human interaction is no longer needed to buy and sell stocks and other investment instruments? To a certain extent. We're there now in a lot of places. A huge volume of the trading going on in options and stock markets is being done through market-making trading. These are firms that on any given day are doing 20% of the market in equities, and that's all automated.

But there's always going to be somebody who knows something about a particular industry, and the machines aren't going to make those decisions.

What are some other trends we can expect to see with financial technology? Index funds were made from numerical information. Now there's a huge amount of tools for exploiting text, such as Google. So you're seeing a lot more interest in textual sources.

How might that be applied? There are very high-end news products, like Reuters NewsScope, which ranks the relevance of a news story to an individual company and a sentiment. You're seeing trading strategies based on aggregate news. So if there's a huge volume of news, and on average they're usually positive but today they're predominantly negative, people try to figure out whether to let the machine pull the trigger or have someone look at it and see if it makes sense before making an investment decision.

You've founded two financial technology companies. Any plans to jump back into the market? No. I don't think this is a great time to do it. Two was enough.

You were one of the first users of Arpanet. What was that like? Really dull. It came up, and it kind of worked. It didn't crash immediately, but they didn't know how much traffic it could handle, so they just gave accounts to computer science undergrads and anyone else who wanted one. So you had e-mail with people you knew, FTP, and you had Telnet where you could log onto another computer if you wanted to. There was no Web, so there was no chat, no surfing, no [images of] naked people out there. It was not a real thrill.

I had a terminal in my apartment, and I was doing some consulting work. I had an IBM Selectric, and the modem was an acoustic coupler. I used it to impress the ladies, these [Wellesley College] girls. It impressed them for about a minute and a half and then they moved on to something else.

— *Interview by* **Thomas Hoffman,** *a freelance writer in New York (tom.hoffman24@gmail.com)*

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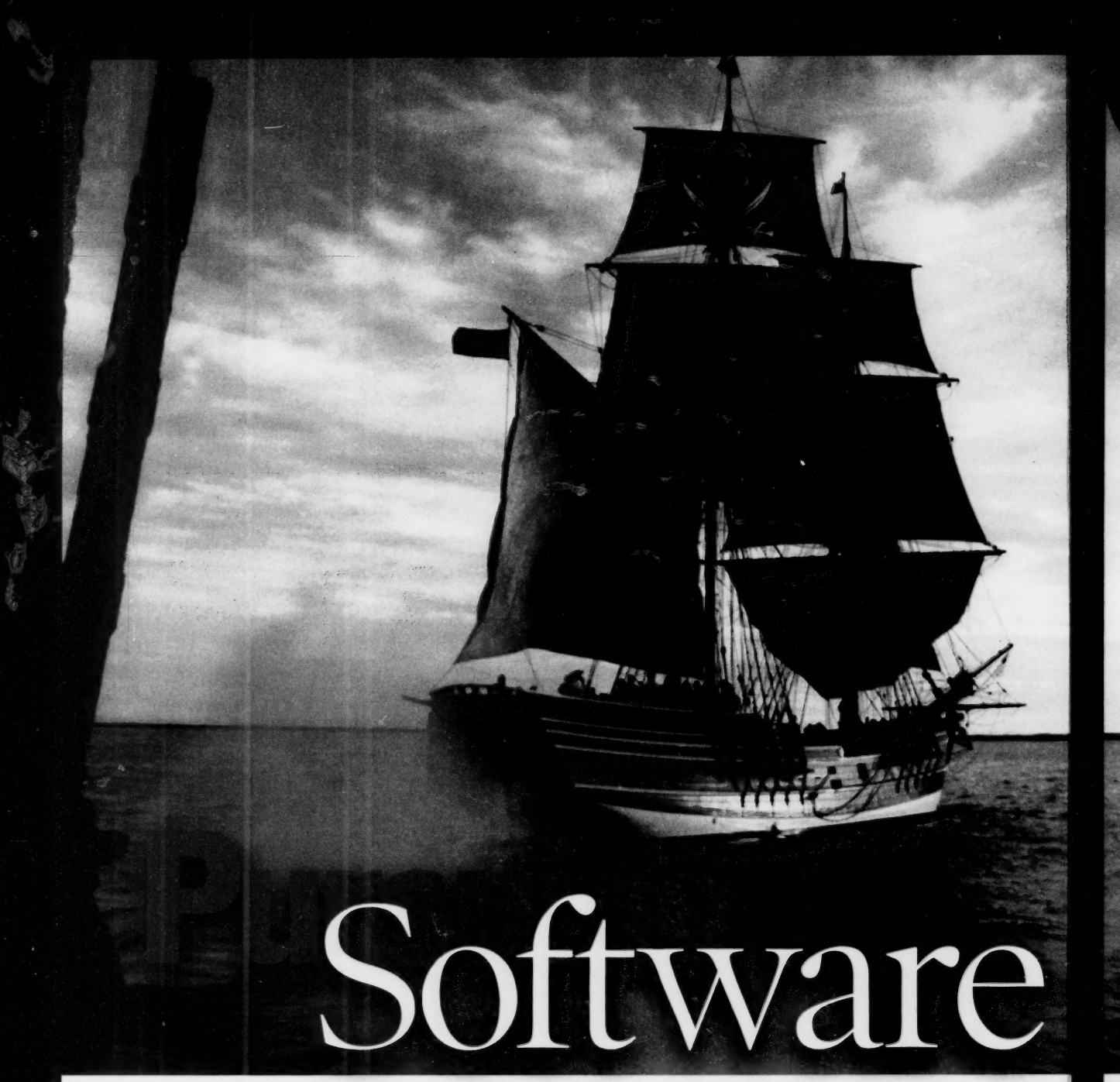
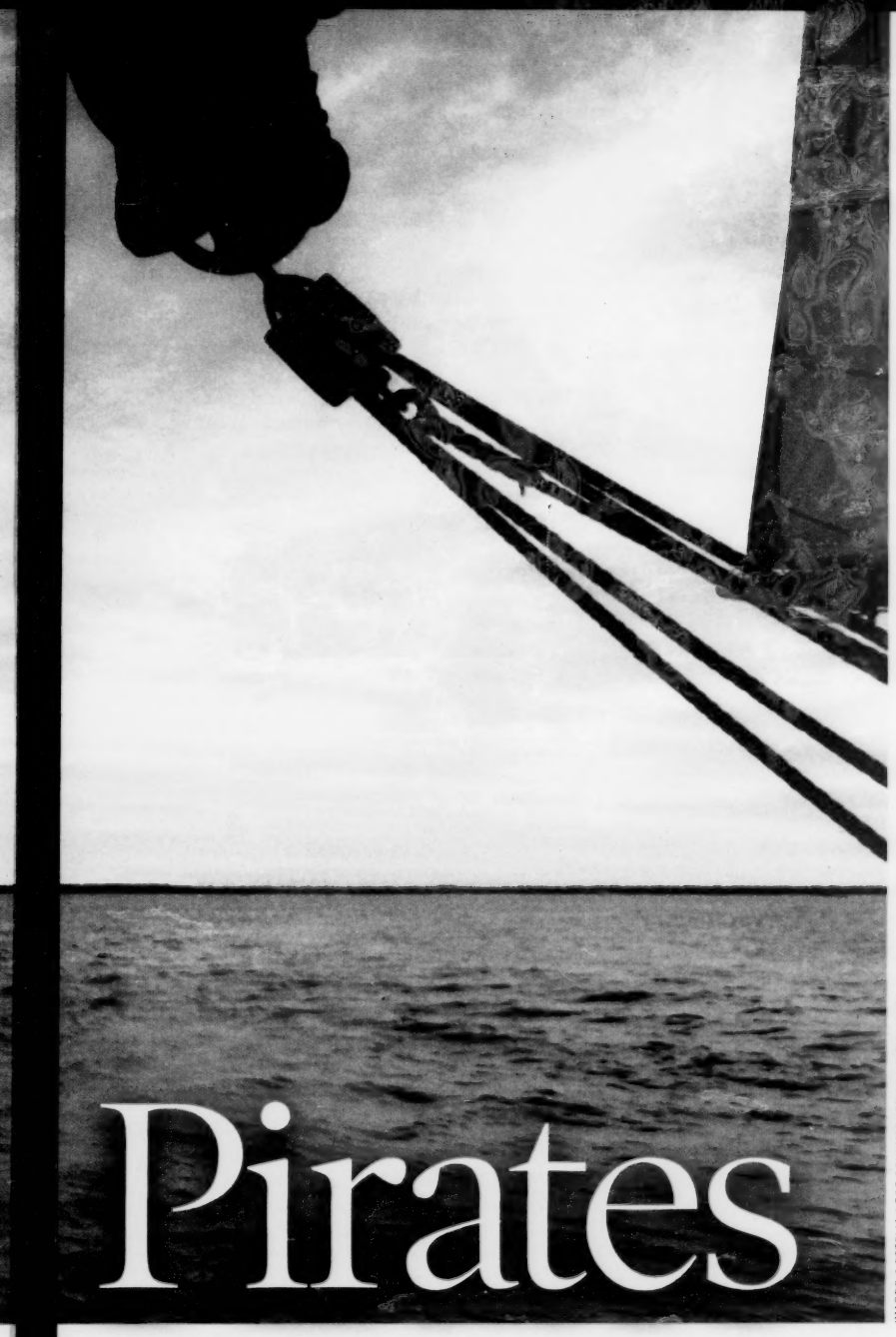


Software

The inside story of how corporate software piracy cases are investigated and prosecuted. Hint: They often start with an IT informant.

By Julia King



Pirates

> **I was the IT coordinator and questioned . . . why I was installing the same CD on all the computers even though we bought one license. [The] response was that [my employer] was too cheap to buy all the licenses.**
>
> ANONYMOUS WHISTLE-BLOWER

IMAGES © FOTOLIA / ZOE SCHUMACHER / DANI SIMMONDS

YOU MIGHT NOT REALIZE IT, but two out of every 10 of your co-workers might be using pirated software, according to industry statistics. You might be, too, for that matter, particularly if you work in manufacturing or at a small or midsize company with 100 to 500 PCs. You just might not know it.

Your boss, an IT manager or even the president of the company, on the other hand, may be well aware of the "cost-cutting measure," which typically involves buying a single license or just a few copies of PC software and then installing it on multiple computers for use by hundreds, sometimes thousands, of employees.

According to the Business Software Alliance (BSA), which represents the world's largest software makers by revenue, virtually no organization — large or small, commercial or nonprofit, governmental, religious or educational — is immune to software piracy. Some industries, like manufacturing, are heavier abusers, however (see chart, page 22).

According to a report issued jointly by the BSA and research firm IDC in

> **It probably would have been cheaper if they had just settled with us in the first place.**
>
> **JENNIFER BLANK,** SENIOR DIRECTOR OF LEGAL AFFAIRS, BSA

May, global software piracy last year accounted for 41% of all installed PC software, which translates into a $53 billion loss to software makers. In the U.S., the 2008 piracy rate was 20%, the world's lowest. Even so, the economic loss is a stratospheric $9.1 billion.

The BSA does a lot more than merely study software piracy. The industry group provides education about copyright and software licensing rules, plus it offers sample software asset management policies and free online tools so companies can self-diagnose and address potential piracy problems.

The group also employs a small team of software piracy investigators to follow up on the thousands of confidential leads it receives each year, primarily from IT managers and other IT employees. *Computerworld* was given unprecedented access to the BSA's Washington-based investigators and attorneys, who explained step-by-step how they find corporate software pirates and what they do once they catch up with them.

HOW IT WORKS

It all begins with a lead like this one, which was submitted to the BSA via its standard online fraud-reporting form (*www.nopiracy.com*) on July 8 and is now being investigated:

"I was the IT coordinator and questioned higher up why I was installing the same CD on all the computers even though we bought one license," wrote an informant. "[The] response was that [my employer] was too cheap to buy all the licenses."

The informant went on to say that "management knew about the issue from Day One and recommended it to save cost. This was brought up several times among the IT staff and was pushed off, as it was considered no big deal."

Another critical piece of information the informant supplied is the number of computers in use at the company and the number of PC software licenses or programs that were legally purchased. Among other irregularities, the informant alleges that a single purchased copy of Acrobat Pro software from Adobe Systems Inc. and five legally acquired copies of Microsoft Corp.'s Office Professional suite are in use on 69 user PCs.

"We ask a significant number of questions [in the online reporting form] because we're looking for as much detailed information as we can get to help us understand and get a comfort level that the person who is reporting really has the goods," explains Jennifer Blank, the BSA's senior director of legal affairs.

Once the lead passes a preliminary credibility check, Frank Konczakowski, the BSA's program coordinator for enforcement, contacts the informant to gather additional information about specific software-related conversations, memos or meetings that might bolster the case. The BSA also contacts the software vendor for whatever licensing or

Online Piracy: Torrents and Takedowns

IN THE FIRST SIX MONTHS of this year, Paul Fornier, the BSA's manager of Internet investigations, sent more than 2 million "takedown" notices to Internet service providers. The notices ask the ISPs pull the plug on auctions, peer-to-peer networks and Web sites that sell or distribute illegal software.

Using proprietary software tools, Fornier and other investigators monitor online auction sites like eBay and software trading sites such as iOffer.com to spot activity involving counterfeit software.

The BSA sends takedown notices to ISPs, not individuals, because "the ISP can affect whether or not the user has access to the Internet," Fornier says. "Most ISPs have an agreement for service that users won't undertake illegal activity."

But cases involving online auctions account for a mere fraction of the BSA's investigations. What's more troubling these days, says Fornier, is the growth in illegal activity at legitimate file-hosting sites. In essence, pirates stash illegal content in a "cyberlocker" on a legal file-sharing site. "Individuals will upload an entire software program online and then post a series of links [at popular forum and blog sites] by which a person can download the full copy of the product," Fornier explains.

The BSA has also gotten some file-hosting sites to remove illegal "torrents," or files shared via peer-to-peer networking software such as BitTorrent.

The BSA frequently refers cases to the U.S. Department of Justice for enforcement. The agency is especially interested in cases involving organized crime and those that are "particularly egregious," says Andrea Sharrin, deputy chief of the Computer Crime and Intellectual Property Section at the Justice Department.

"There have been reports of an increase in crime syndicates involved in intellectual property crimes," Sharrin says. Those groups use profits from the sale of pirated software to fund other illicit activity. "It is perceived as a low-risk, high-profit offense compared to other crimes," she says.

– JULIA KING

sales information it may have about the suspect company.

"If our informant reports 100 copies of Norton antivirus software but then Symantec reports 100 copies licensed, we know the lead is no good," Blank says. Because so many software vendors sell through multiple distribution channels, their information isn't comprehensive. But some BSA members, especially engineering software makers like SolidWorks Corp. and Autodesk Inc., "keep copious databases with registration numbers and transfer information and a lot of detail," she adds.

In more than seven years as an investigator, the one thing that Konczakowski says consistently amazes him is "how blatant the pirates are." He has seen plenty of cases where a single legal copy of a PC software program has been installed on hundreds of machines. Even more troubling is that most informants who report corporate software piracy to the BSA say that the company knows about the piracy.

PURPOSEFUL PIRACY

"Usually, our informant will say their company is aware of the problem and has made a deliberate decision not to buy the software but to pirate the software," says Blank. "Of course, when we investigate, we hear a different story from the company itself."

But the BSA doesn't put a legal press on all of the reports of piracy it receives. Rather, for a case to go forward, all BSA members must unanimously agree to move ahead with legal action. All leads and follow-up information are stored in a central database that licensing staffers and attorneys from the BSA's member companies access via an online portal. They then review the information and decide whether to take further action.

The cases that get escalated are those that involve "a reasonable number of computers and software" and have a "good lead," Blank says, although she declines to specify what the BSA considers a "reasonable number."

"It's not a set number of computers, but we're looking ultimately to reach a settlement with the company, so we have to look at whether it's worthwhile investing in legal fees," she explains. "If it's 20 copies of a $20 software program, that's not a great lead for me. But 10,000 computers and only three [legal] copies is a lot better lead. It's going to involve a larger case. So we're looking for a reasonable number of computers and a variety of software."

One other important note is that the BSA pursues only those cases involving software

Blowing the Whistle

REVENGE isn't their primary motive. Neither is money – fewer than half of the informants who report their employers for using pirated or unlicensed PC software ask about financial rewards.

Instead, most informants are like Bob, who last year reported his former company for using what his then-boss told him was "jacked software." He was galled by the blatant dishonesty. Some informants, especially those who are in IT, also express concern about their professional reputations.

(The names of informants are kept confidential, so *Computerworld* is only using first names.)

In 2008, the Business Software Alliance received more than 2,500 reports of illicit use of software by companies in the U.S. It settled 588 cases for a total of $9.5 million. The BSA also paid out $136,000 to 42 informants, with the average reward being about $3,000.

Clearly, the number of informants outstrips the rewards paid out. That's because most informants aren't interested in financial compensation, according to the BSA, which maintains a reward pool of up to $1 million annually.

Rather, "most informants feel they have professional credentials to protect," says Jennifer Blank, the BSA's senior director of legal affairs. "People who call our hot line are outraged by the situation."

For Bob, the outrage began when he went to update operating system and design software at the small manufacturer where he worked. "The foreman told me you can't update it. He said it would freeze up and that the software wasn't registered," Bob recalls. "That was mind-boggling to me, because without that kind of software, they weren't in business."

Not long afterward, both Bob and, later, his boss, left the company. Bob got jobs at other manufacturers and after about a year decided to report his former employer.

"It stewed at me," especially as he saw other companies paying their fair share for the software they used, Bob explains. "It was the level of dishonesty that triggered me [to contact the BSA]."

Chuck, a computer science teacher in Pennsylvania, wasn't looking for money or kudos when he contacted the BSA about his school district. He was simply doing what's right, he says.

The district had purchased a single copy of Adobe software for use by 1,500 students. Well aware of software copyright and licensing laws – which he taught to students as part of the computer science curriculum – Chuck met with school administrators about the situation. He also discussed it with IT personnel lower down in the hierarchy. The high-level administrators, Chuck says, told him that what they were doing was perfectly legal. But at the lower end, "the people said they were aware of the licensing issue but that was what they were told to do by upper administration," Chuck recalls.

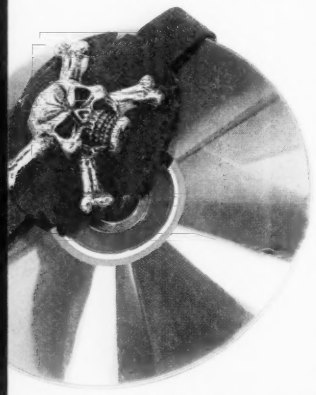
At that point, Chuck purchased his own copy of the Adobe software, read the licensing agreement carefully, and then contacted the BSA.

"It was really not a driving force to turn these guys in and cash in. It was more to get them back on track so everything we had was legally licensed," Chuck says.

"As somebody teaching students how to write computer programs and about the ethics involved in that, it's disturbing to find out your district isn't following procedures," he explains. "What kind of example does that set? We're there to teach kids right from wrong along with the right skill sets."

– JULIA KING

> **People who call our hot line are outraged by the situation.**
>
> JENNIFER BLANK, SENIOR DIRECTOR OF LEGAL AFFAIRS, BSA



of its member companies. The group doesn't have the power of attorney to pursue cases on behalf of nonmembers.

If the case gets a green light, an attorney representing the BSA first sends the CEO of the target company written notice of the allegations and all of the details. The informant's identity remains confidential throughout the process. The organization also asks the company to perform its own investigation and an audit of all software published by BSA member companies.

Ultimately, the goal is to get the company to own up to the possession of whatever software it may be using illegally, agree to a financial settlement based on the retail price of the unlicensed software, and promise to comply with all licensing and copyright laws going forward — all without litigation.

"Our goal is to work with companies collaboratively, not go to court," Blank explains. "There's a good reason. From a bang-for-the-buck perspective, I can sue two companies for the same amount of money I can do 20 audits. [Through audits] I can reach more companies and achieve more compliance. It's also cheaper for BSA and for the company defending itself."

Last year, the BSA received more than 2,500 informant leads, requested 920 audits, pursued one case in court and collected $9.5 million from settlements.

But the organization can and will take noncompliant companies to court. In June 2008, the BSA filed a copyright infringement lawsuit against Taney Engineering Inc. and Taney Cunningham Equipment LLC of Henderson, Nev., after the civil engineering company presented the BSA with an audit report whose findings varied significantly from the information provided by a confidential informant.

Unable to resolve the dispute during the audit process, the BSA filed a lawsuit and court proceedings began. Ultimately, however, Taney did reach a settlement with the group, which collected $205,000 in damages from the company.

"It probably would have been cheaper if they had just settled with us in the first place," says Blank. ■

Wall of Shame

The 10 industries most often reported for software piracy:

1. Manufacturing
2. Sales/Distribution
3. Service
4. Financial services
5. Software development
6. IT consulting
7. Medical
8. Engineering
9. Education
10. Consulting

SOURCE: BUSINESS SOFTWARE ALLIANCE, WASHINGTON

Piracy's Global Economic Impact Debated

THERE'S NO QUESTION that software piracy is a global problem with a heavy financial impact. But just how heavy it is is a matter of debate.

A May report by the BSA and IDC estimated that 20% of software programs installed in the U.S. last year were unauthorized copies. Worldwide, the figure is 41%, with an estimated financial impact of $53 billion – a figure based on the retail value of the pirated PC software.

But critics of the study say it fails to account for the possibility that pirated software could be replaced with Linux or other open-source options. If it were, the BSA's global loss figure of $53 billion would drop sharply, they maintain.

"Obviously, not every piece of pirated software will be replaced immediately with legitimate software if underlicensing is addressed or sources of pirated stuff dry up," acknowledges Dale Curtis, the BSA's vice president of communications. But he says that over the years, IDC has found "a very strong correlation between piracy rates and software sales. In country after country, as the piracy rate falls, legitimate sales go up."

A second criticism of the report is that its country-by-country figures are partly based on the results of an annual survey that in 2009 covered 24 countries. One country that wasn't included is Canada – and that doesn't sit right with Michael Geist, a professor at the University of Ottawa.

"What the BSA did not disclose is that the 2009 report on Canada (whose piracy rate declined from 33% to 32% in the study) were guesses since Canadian firms and users were not surveyed. While the study makes seemingly authoritative claims about the state of Canadian piracy, the reality is that IDC . . . did not bother to survey in Canada," Geist wrote in a May 27 blog post.

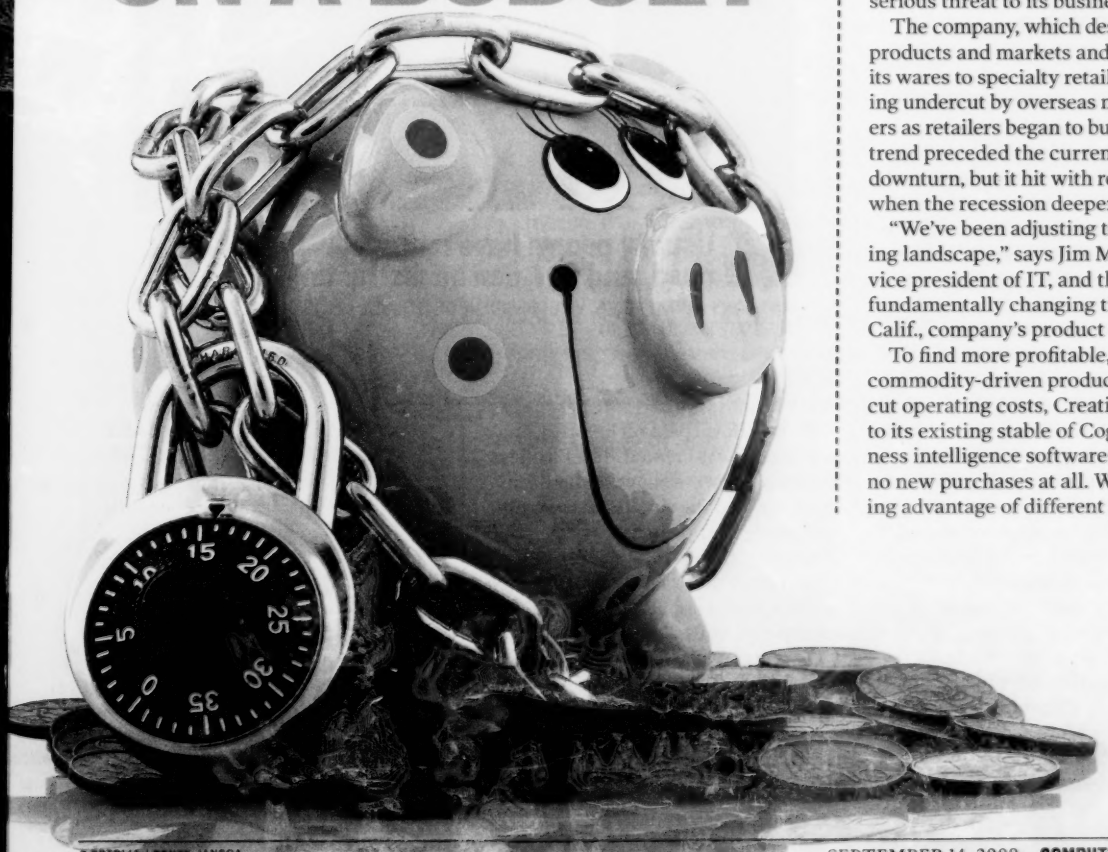
Curtis responds that the study "is not a guess, nor is it a scientific measurement, nor is it based primarily on a survey of software users, as Geist suggests." A survey of 6,200 users is only a piece of the model, Curtis says. Further, he says Canadian users were surveyed the previous year, and "there is no reason to assume large changes in results from one year to the next."

Ivan Png, a professor of information systems and economics at the University of Singapore, says the BSA and IDC should explain how they applied the results from the 24 countries surveyed to all of the other countries not surveyed. "IDC should make the methodology transparent," Png says.

– JULIA KING

BI ON A BUDGET

You don't need new analytic tools to gain insight into your business. Here's how to make the most of what you've got. **By Robert L. Mitchell**



"USE IT UP. Wear it out. Make it do. Or do without." That adage from the Great Depression is making a comeback these days among corporations that are digging deep to maintain profitability using business tools they already have in-house.

One of those companies is Creativity Inc., which two years ago was facing a serious threat to its business model.

The company, which designs crafting products and markets and distributes its wares to specialty retailers, was being undercut by overseas manufacturers as retailers began to buy direct. The trend preceded the current economic downturn, but it hit with renewed vigor when the recession deepened.

"We've been adjusting to a changing landscape," says Jim Mulholland, vice president of IT, and that includes fundamentally changing the Van Nuys, Calif., company's product strategy.

To find more profitable, less commodity-driven products, and to cut operating costs, Creativity turned to its existing stable of Cognos business intelligence software. "We made no new purchases at all. We are taking advantage of different parts of the

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Cognos system, like Event Studio," a Web-based events-management module, Mulholland says.

The economy has companies scrambling to use BI to find operational savings and to refocus their product lines and strategies, says Nick Millman, senior director for information management services at Accenture Ltd.

But IT organizations aren't rushing to buy new business intelligence software or build new data warehouses. Instead, they're digging deeper and doing more with existing tools from BI vendors such as IBM's Cognos unit, SAS Institute Inc., SAP AG's Business Objects unit and Microsoft Corp. "Organizations are trying to utilize their existing business intelligence tools without going out and buying more hardware and software," Millman says.

Millman and others suggest the following strategies to squeeze more out of your existing tools while giving your business an extra boost.

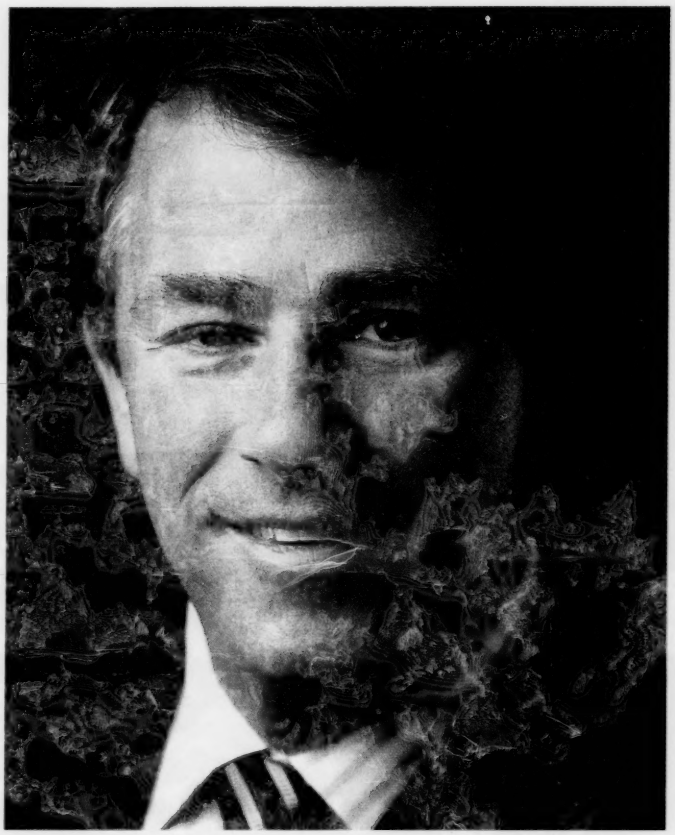
1 CONSOLIDATE YOUR TOOLS

"Usually people have more tools than they need, and that can be distracting," says Anthony Abbattista, vice president of technology solutions at Allstate Insurance Co. in Northbrook, Ill., and a former business intelligence consultant. Those organizations end up with "different pockets of people doing similar analysis with different tools," he says.

His recommendation: Consolidate, and be aggressive about it. "Get to the minimum number of tools you need to get the job done."

Over the past few years, Abbattista has overseen the consolidation of 13 data warehouses down to just two and has pushed Allstate from a centralized business intelligence function to a self-service model based on the deployment of customizable dashboards.

Settling on a standardized set of tools was the first step toward empowering business managers and analysts. Abbattista says the company "killed off" two-thirds of the tools it was using, including redundant products and "falling stars" — yesterday's hot tools that are no longer considered leading-edge.



"Usually people have more tools than they need, and that can be distracting.

ANTHONY ABBATTISTA, VICE PRESIDENT OF TECHNOLOGY SOLUTIONS, ALLSTATE INSURANCE CO.

Those efforts paid off before a single new report was created. The business saved on software support and licensing costs, and the simplified tools portfolio made user training easier.

Standardizing on a single set of tools also made it easier for different groups to share and reuse models. Before, for example, the sales and finance groups had separate profitability models that they had created using different tools. "If they got different results, you'd spend time trying to rationalize why that was," Abbattista says. Now different units can feel confident that they're comparing apples to apples.

2 LET BUSINESS TAKE THE DRIVER'S SEAT

It's more important than ever for companies to make sure that BI technology is being applied to solve the right business problems. IT organizations still fall into the trap of putting their technology out front rather than creating models that respond to changing business needs, says Millman.

The key is to work with the business before developing new information models. "Start with a clear vision of

Continued on page 26

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AWARDS PROGRAM

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The Business Intelligence Perspectives "Best Practices in Business Intelligence" Award Recipients will be honored on Wednesday, September 16th.

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Creating an Agile BI Infrastructure

- Alfa Insurance, Montgomery, Alabama
- CenterPoint Properties, Oak Brook, Illinois
- Raytheon Missile Systems, Tucson, Arizona
- Royal Bank of Canada, Toronto, Ontario
- The Hartford Financial Services Company, Hartford, Connecticut

Driving Process Management with BI

- City of Chicago, Chicago, Illinois
- Lincoln Trust Company, Denver, Colorado
- New York City Department of Information Technology and Telecommunications (DoITT), New York, New York
- United States Postal Service, Washington, DC
- University of Illinois, Champaign, Illinois

Expediting Information Delivery, Retrieval, Reporting and Analysis

- ARC, Arlington, Virginia
- Cabela's Inc., Sidney, Nebraska
- Elie Tahari, Ltd., Millburn, New Jersey
- GEFCO, Courbevoie Cedex, France
- Verizon Communications, Basking Ridge, New Jersey

Innovation and Promise in Business Intelligence

- City of Chicago Office of Emergency Management & Communications, Chicago, Illinois
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- Lincoln Trust Company, Denver, Colorado
- United States Postal Service, Washington, DC

Thank you to our "Best Practices in Business Intelligence" judges for 2009:

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- **Dan Vesset, IDC**

Judging Criteria

Judges evaluate and rank the finalists in each category according to their substantiated Business Intelligence solution attributes and achievements using criteria that includes:

- Strategic importance to the business.
- Positive impact on other business/organization units.
- Substantive customer impact (service, retention, acquisition).
- Advantage to the business/organization while anticipating and accommodating the deployment of future Business Intelligence initiatives.
- Financial return and measurable payback (returns on investment, assets, resources) through created/protected revenue opportunities or cost savings.
- Challenges of data, information and application security, etc.

Continued from page 24
how information will generate value for the organization," Millman says. "Think about what business interventions you hope to derive from BI tools. Understand where the business benefit is going to come from, then configure the tools and processes."

At Allstate, two areas of focus are managing loss expense ratios and measuring the effectiveness of the call center. "We've taken experts in the tools and methods and put them together with the business people to find these high-value targets," says Abbattista.

The temptation in larger organizations is to try to do too many things with BI, he observes. Having fewer tools helps with that problem, but management also needs to prioritize what is most important.

"These times have been good because they've brought focus on measuring fewer things well," says Abbattista. At the highest level of the business, Allstate's management is watching 10 or 12 different metrics, he says. While business intelligence tools used by the business units include a wider range of metrics, they are all designed to support the upstream metrics that management is watching.

3 USE NEW DATA MODELS FOR NEW MARKETS

Right now, says Gartner Inc. analyst Bill Hostmann, "there's a big strategy change in many organizations from high-value product offerings to low-cost offerings." But businesses that can't compete in the low-cost market must figure out a way to move up the value chain — and they're using BI tools to get there.

Which is what Creativity did. To combat the commoditization trend in its core markets, it used the Cognos 8 BI suite to identify and develop high-value products that couldn't be easily commoditized by its low-cost competitors.

It started by purchasing transactional data from retailers in the toy, fashion and apparel markets, adding that data to its existing data warehouse, and analyzing buying trends. Creativity also uses Belmont, Mass.-based Smart Software Inc.'s SmartForecast forecasting software.

All that analysis has led to more "design-oriented, fashion-oriented" products, such as a line of paper dolls based on the television show *Project Runway*.

The strategy appears to be working. Creativity's fashion-based offerings and its other unique designs have become the dominant portion of its business, accounting for more than 50% of its sales and representing an even greater percentage of its margins, Mulholland reports.

4 CENTRALIZE BUSINESS INTELLIGENCE

To help identify the right areas to focus on, Mulholland started an analytical "center for excellence," a group that includes representatives of different parts of Creativity, from sales to operations. "You're trying to elevate the IQ of everybody in your company in terms of knowing the key business metrics and measuring them accurately and in a timely way across all areas of the business," he says.

Moving toward that goal, Creativity developed common tool sets and profitability models for its sales and finance groups. Reports are pushed to the desktops and viewed in dashboard applications. From there, Mulholland says, users "can go in and do further analysis."

IBM has been promoting such centers among its Cognos customers as a way to create a standardized set of models using existing business intelligence tools. A set of BI dashboards developed for one department, for example, can be extended to other units. That way, new groups don't have to reinvent the wheel and can get up and running more quickly.

5 PUT MORE DATA IN YOUR WAREHOUSE

The current economic downturn is a great time for organizations to review what they're tracking and to add more data from business operations into their data warehouses to find additional savings. Just be very selective about what you add, experts advise.

Anne Milley, director of technology product marketing at SAS Institute, suggests adding data from call centers, Web logs or other sources. The question companies have to ask in these times, she says, is, "What do I have that I can get into the data warehouse at a relatively low cost?"

As sales slowed at Creativity during the downturn, Mulholland and the center for excellence team changed their focus from keeping up with growth to cutting costs. One project involved providing a feedback loop linking the back-end ERP system and the CubiScan system that's used for shipping.

CubiScan is a laser-based scanning and weight-measurement system from Quantronix Inc. that's designed to ensure that goods are properly packaged to meet customer specifications. (If they're not, the penalty fees can be "considerable," Mulholland says.) While the ERP system issued packaging instructions with the orders, the stand-alone CubiScan system wasn't returning data on whether shipments were actually packaged properly — and many were not. "There was no feedback loop," Mulholland says.

The IT team used the Cognos ETL (extract, transform and load) tool to bring the CubiScan data into its data warehouse and then built exception reports for shipments where specifications for package dimensions hadn't been met. Mulholland expects the project to pay for itself in three to five months.

6 MAKE BETTER USE OF DATA YOU ALREADY HAVE

In some cases, doing "more with less" may simply be a matter of taking data that users already have and presenting it to them in a more useful way. At the Wisconsin Department of Revenue's Business Intelligence Services Bureau, Director Janna Baganz says her organization found a way to present a multiyear view of tax data on a single screen. "That proved to be a timesaver," she says.

Her group also worked to combine data from the state's income processing and audit systems, relieving analysts of the need to do exception report analyses. Now, when certain business rules kick out a tax return from the processing system, the staff no longer

"Organizations are trying to utilize their existing business intelligence tools without going out and buying more hardware and software.

NICK MILLMAN, SENIOR DIRECTOR FOR INFORMATION MANAGEMENT SERVICES, ACCENTURE LTD.

spends 20 minutes running a manual report on another system and then reviewing it to resolve the issue.

Instead, the integrated systems automatically resolve the problem between themselves and process the claim in about two minutes — without staff involvement. Since July 2008, the department has saved approximately 1,750 hours of staff time and taxpayers get their refunds faster, says Pat Lashore, administrator of the department's technology services division.

In a similar vein, Allstate has had success pushing report-creation and -customization capabilities out to end users through the deployment of dashboards. Previously, the company had a centralized report-writing function within IT, and "it took a lot longer to get answers into the hands of business people," Abbattista says. Now his team creates dashboards, walks users through the basics of using the tool and lets them do the rest.

Back in the IT department, the self-service BI tools helped Abbattista's team get out of the report-building business and clear out a long backlog of report requests. Through the self-service initiative and data warehouse consolidation, he has reduced head count by two-thirds while expanding access to self-service BI tools to 25,000 users.

7 HELP USERS UNDERSTAND THE DATA, NOT JUST THE TOOLS

Scaling up the number of users who have access to BI tools won't help unless people know how to use those tools. But that's not the biggest issue when it comes to educating users. "The trend has been for the front end to get simpler and more intuitive," Millman says. And certainly dashboards have helped in that regard.

"What's often missing is the explanation of where the data comes from and how you can use it to derive some insight," Millman says.

For example, the data generated by Creativity's CubiScan system was foreign to business people in the back office. "We have to explain what the data points are and what the data points mean," Mulholland says.

Allstate focuses on building that knowledge one user at a time. "We build out initial capabilities with front-line managers and people in the trenches," Abbattista says. "They then become the consultants to people around them.

"It's really [about] teaching people to mine for value," Abbattista explains. In that respect, he says, "I don't think we'll ever be done with our BI efforts." ■

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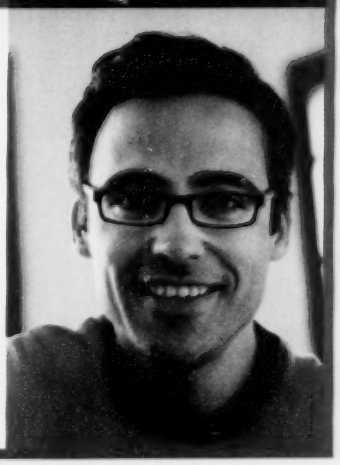

UMUC
University of Maryland University College

Technologies such as WiMax, smart grids and social networks will transform tomorrow's urban centers. **By John Brandon**

City 2.0

SCIENCE FICTION writers paint grand pictures of glorious cities of the future. But aside from some of the more whimsical elements of those visions — flying cars, say, or downtown atriums protected by invisible walls — City 2.0 isn't as far off as you might think.

Ubiquitous wireless networks are already available in Baltimore, Minneapolis and other cities; corporations such as Thomson Reuters PLC have sustainable data centers that sell power back to local utilities; the smart energy grid is well on its way; and city-provided social networks are becoming more common. Indeed, the next steps toward the city of tomorrow are all about integrating those services cohesively, making them widely available across the entire metropolis and managing the services more efficiently.

"The reality is that the city of the future will likely have many aspects of a contained and managed ecosystem," says Rob Enderle, president and principal analyst at Enderle Group.

While some visions of tomorrow's municipalities are quite grandiose, several recent technology advancements are already paving the way to City 2.0.

THE SMART GRID

The smart use of energy is one of the most important goals for urban centers. The

Continued on page 30

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Continued from page 28

smart grid concept centers on the idea of using electricity when it's available cheaply, rather than at peak times when it's more expensive, and it calls for wind and solar and other renewable sources to be integrated into the energy grid. This requires two-way communication between utility companies and the businesses and individuals who use their power. We're nowhere near a comprehensive smart grid yet, but some cities and energy companies are taking steps in that direction.

Today, a few cities, such as Boulder, Colo., and Houston, have pilot programs in which customers can visit a Web site to see their real-time energy usage.

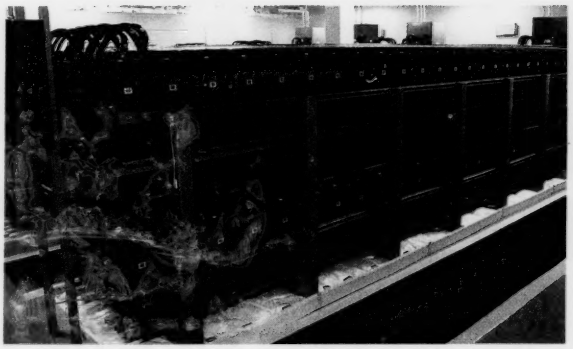
A good example of smart grid technology in action is at the Iowa State Capitol complex in Des Moines. City officials there have set up a smart grid that feeds to a central kiosk that shows the power usage for each building in the complex. To create the smart grid, the buildings were wired with sensors that connect a fiber backbone, feed through a central server and then report usage data in real time to the kiosk.

"Today, departments have no incentive to save power," says state CIO John Gillispie. "We are working toward billing the individual departments for how much they use."

Gillispie is planning on adding sensors for monitoring power by floor, and he envisions a day when sensors are deployed across the state — even on roadways and in cars, office buildings, schools and homes.

CITY-CENTRIC SOCIAL NETWORKING

We're all familiar with using social networks to catch up with friends and family or even to find a job, but wouldn't it be nice if your city had a social network where you could keep abreast of local developments and weigh in on neighborhood issues?



This Thomson Reuters data center, which has rows of batteries and generators for backup power, has close ties to the local electric utility.

INTEL CORP.

A citywide wireless network could have wide-ranging implications for how residents connect with elected officials and one another.

The city of Dublin, Ohio, uses Novell Inc.'s Teaming software to run a portal where government officials can publish blogs, chat via instant messaging and share documents. In the next few months, the city plans to make the private network available to all citizens. In the future, a social network like that could allow residents to submit ideas for city improvements, chat with politicians and blog about their neighborhoods over a secure, city-centric portal.

San Jose, Calif., is already one of the most high-tech cities in the U.S. Over the next few years, it will create a social network on Wikiplanning.org — an online site for civic engagement — that will help citizens learn about the city, chat using instant messaging tools, complete surveys and download city podcasts.

"Frequently, only small groups of residents come to public meetings, and in the case of a multiple-meeting project, it's largely the same group of citizens who continue to participate," says Kim Walesh, San Jose's chief strategist. "Participation by small groups may not offer a good representation of the community as a whole. An advantage of Wikiplanning is that activities can be done day or night at the user's convenience, allowing for far greater participation."

WIMAX AND CITYWIDE WIRELESS

The concept of readily available wireless service has been around the block a few times, so to speak. Cities such as Philadelphia and Chicago have tried to provide Wi-Fi access, without much success. Minneapolis is one of the few large cities that has deployed Wi-Fi successfully.

In Portland, Ore., a Wi-Fi network didn't fare so well, but a WiMax project seems to be off to a stronger start.

WiMax, widely seen as the next generation of mobile data access after Wi-Fi, stalled over the past few years because of the complexity of the technology, changes in partnerships and reluctance on the part of city officials to adopt an emerging technology. Even so, WiMax promises more ubiquitous access than Wi-Fi, because Wi-Fi hot spots require users to seek them out whereas WiMax is available throughout a given area. WiMax requires fewer base stations and has a lower infrastructure cost, and it uses licensed spectrum that does not interfere with other wireless LANs.

Tim Sweeney, a product manager at Intel Corp., says the prospects of WiMax in cities are strong because it can provide greater bandwidth for city services.

"Wi-Fi was never intended to support a wide area; it is really for inside buildings," Sweeney says. His vision of future municipal WiMax deployments includes cars using the technology to report their fuel tank levels, gas stations bidding on the cost of fuel, and

The Cloud Ties It Together

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It's easy to see how cloud computing could play a key role in managing city services. There might be a central command center for monitoring and adjusting power usage and for providing IT services via WiMax, but the actual IT operation could be "in the cloud" rather than housed in the city's data center.

Yankee Group Research Inc. says this is part of the "anywhere connectivity revolution," which is partly about making mobility in a city infrastructure more flexible, efficient and scalable. In this model, anything can be an endpoint, including PDAs, cars, office buildings and your home.

Jeffrey Breen, chief technology officer at Yankee Group, says that the IP-based, packet-switched cloud model in the enterprise can also be applied to a city's infrastructure – that is, as a vast, interconnected smart grid and social network with widespread and reliable wireless access. Mobile citizens would be a click away from city services.

"One way or another, we will get to the point in cities where anyone who wants high-speed access will get it – and the city won't have to worry about the details of how," says Breen.

– JOHN BRANDON

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electric cars communicating with smart grids about their energy use — perhaps to determine whether alternative routes would save power.

SUSTAINABLE DATA CENTERS

Sustainability is a key part of the city of the future. The idea is that a highly efficient, well-monitored green data center could allow a city to realize major energy savings. The vision also calls for such data centers to be used for most city services, not just computing. For example, a single city data center could support government services and monitor automobile traffic. Today, those functions are difficult to consolidate.

Enderle says most city services aren't connected to one another today, but some individual components, such as applications that monitor electricity usage in government buildings, have sensors that could be used to create more integrated systems. At some point in the next 10 years, cities will decide that patching an aging infrastructure no longer makes sense and will instead start using more modern technology, Enderle says. In a sustainable data center model, city services could be part of a vast "network of networks" that monitors real-time power, water, wireless and data usage for all citizens.

Thomson Reuters offers a model for such a sustainable system. The news and information-gathering service operates multiple data centers that occupy a total 100,000 square feet of space for its Westlaw online legal research service in Eagan, Minn. Rick King, the company's global head of technology and operations, has designed those data centers so that they have close ties to the local utility, the Dakota Electric Association.

Thomson Reuters has about 900 batteries in one data center and four diesel generators in another, which it uses as a backup for power delivered by the local utility. It also has two massive diesel fuel tanks. Today, the company uses the batteries for short bursts (about 15 minutes) of backup power and can use its generators for a day or two as needed, allowing the local utility to sell the unused power.

Enterprise IT offers other examples of how future cities could operate. Thomson Reuters monitors 15,000 IT assets, such as servers and storage arrays, in real time, and the power usage is controlled automatically — when the diesel generators are needed, they start up. Extending this model to a city could mean that power companies are highly connected and that a smart grid would allow homeowners to monitor their own use at the individual appliance level, enabling them to adjust usage patterns.

A highly connected city with smart grids, widely available wireless access and a sustainable data center is well within reach. Over the next 20 years, cities in the U.S. and abroad will likely take steps toward that goal, building the infrastructure with a view toward better connectivity and better living. ■

Brandon, *a regular contributor to* Computerworld.com, *worked as an IT manager for 10 years and has been a tech journalist for another 10.*

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It Takes a Crisis to Change a Policy

After **25 laptops were stolen** in broad daylight, our manager might have **a better shot** at implementing **some needed changes.**

THIS IS a story about how budget cuts take a toll on security, but it's also a tale about how security setbacks can be opportunities to introduce much-needed measures.

When the recession led my company to cut costs about a year ago, one of the decisions was to close a major facility housing some 1,200 employees. A lease agreement meant we couldn't start moving those employees into our headquarters building until last week, when 200 made the move.

When the moving truck arrived here, the movers propped open one of the building's side doors. That was a mistake, made worse by the fact that the budget for guards at headquarters was also cut last year. No guard was available to watch the truck or that open door, and the movers, of course, were too busy moving things to provide security.

That big moving truck outside of an office building must have looked like an invitation, because someone took advantage of the situation and sneaked into our offices through that side door. That person then proceeded to steal unsecured laptops from open offices and cubicles. He got 25 of them, apparently making several trips in and out through that door. He might have gotten more, but on one of his trips out of the building — when he was carrying five laptops — an employee challenged him. He ran to his car and took off. Another employee chased the thief but was only able to obtain a partial license plate number. But we know the make of the car and have some video footage from our security cameras, so we're hopeful that we'll be able to recover our goods. In the meantime, data and intellectual property are at risk.

As I said, though, unfortunate events are sometimes the needed impetus for making changes. My experience has been that when bad things happen, I have about a one-to-two-week window of opportunity. I seized the moment.

■ When bad things happen, I usually have about a one-to-two-week window of opportunity.

GRABBING THE CHANCE

First on deck is full disk encryption. We tried to implement it about two years ago, buying the product put out by PointSec (recently acquired by Check Point Software). But some simple things impeded widespread adoption. For example, a lot of our employees use laptops inserted into docking stations, and they couldn't use their USB mice and keyboards until after they logged in. There were also problems with hibernation that I understand have been fixed in newer versions of the product.

These aren't problems that justify failing to use encryption, and my new, post-theft goal is to have our general counsel support a policy making it mandatory for some employees — i.e., those in legal, HR, finance and the executive offices.

I'm also going to push a group policy requiring that a password lock kick in after a set period of inactivity. Many of the stolen laptops were logged in, giving the thief full access to the information on them. The cost of the laptops is negligible compared to the potential losses to the company and to the individuals whose identities could be stolen through the personal information they kept on their machines. The reason we don't already have such a policy is that it would affect some of our engineering tools. But I think the laptop theft adequately demonstrates that the risk from not locking machines is greater than the benefit to engineering.

Finally, I will take steps to raise awareness about personal security, laptop locks and the need to be aware of those around us.

I wish it didn't take a near catastrophe to drive change. But since that's the case, I can always hope that next week a vendor will plug his laptop into one of our shared office environments and I'll finally be able to start my network access control project. ■

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

Trouble Ticket

AT ISSUE: A brazen theft has raised everyone's awareness of security issues.

ACTION PLAN: Take advantage of this opportunity to establish stronger security policies.

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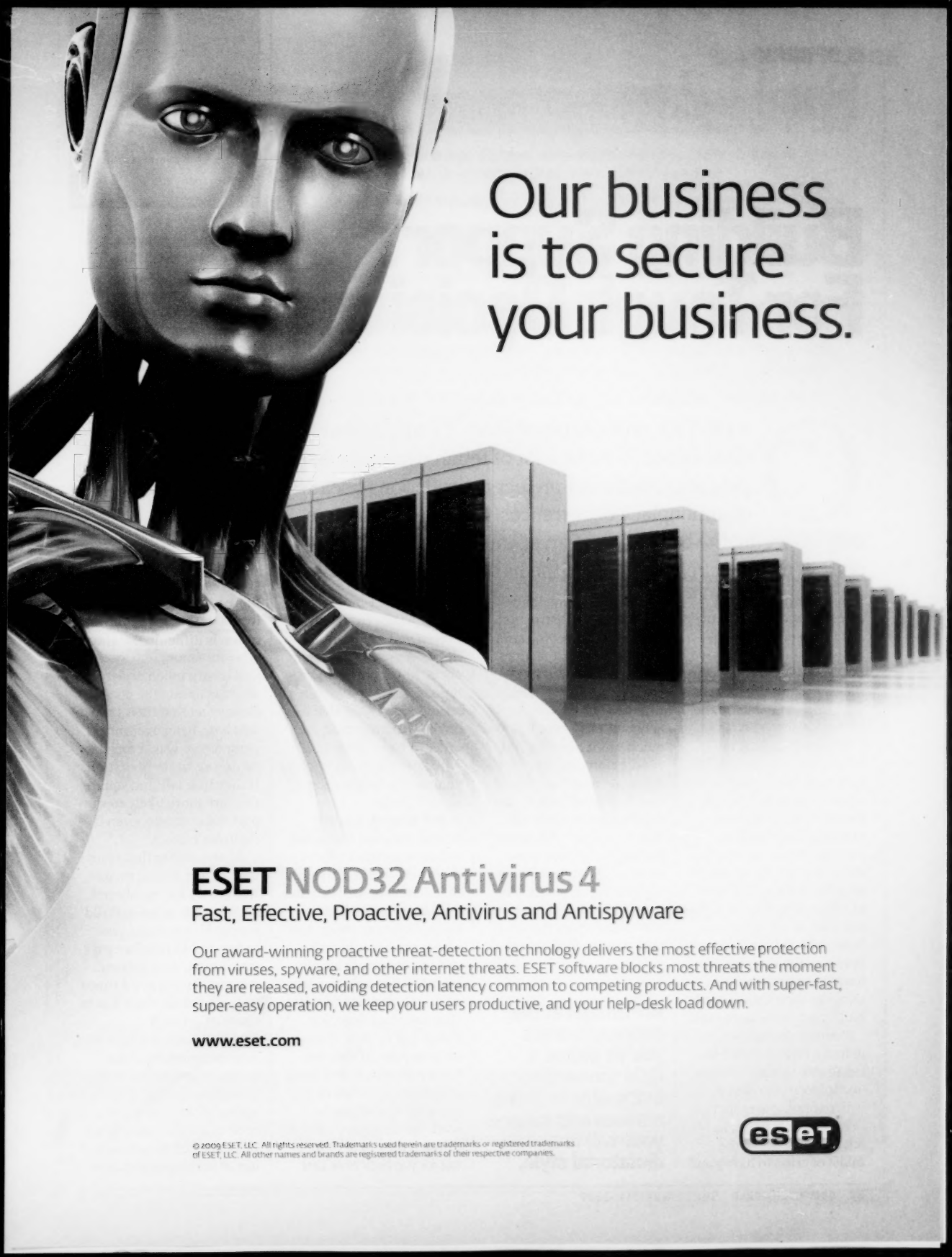

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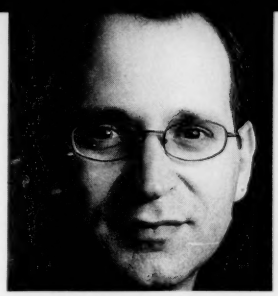

Building Support For Tough Decisions

OVER THE past couple of years, IT managers have been forced to make a lot of tough decisions. Budget cuts, layoffs and project cancellations became commonplace occurrences. But just because we may be seeing the beginning of an economic recovery, that doesn't mean we're at the end of the hard choices.

In my experience, IT investment doesn't recover until a year or more after business starts to improve. Budget cycles and managerial caution intervene to slow improvements in the IT workplace.

What will return to your IT shop more quickly than your budget and head count is the sense among the staff that decision-making can go back to normal. During emergency situations like the economic meltdown, decisions have to be made hurriedly, without a lot of consultation. Now, with things looking better, managers should have more time to contemplate their choices and build support for decisions.

Perhaps, though, you've gotten a little too used to being able to make choices and impose your will in a dictatorial, emergency-driven style. It might have felt a little heady in the midst of crisis to have your people look to you for decisive plans and instruction. You shouldn't get too comfortable with that feeling. The support from the staff that managers have enjoyed recently can, and probably will, evaporate just as quickly as it materialized.

So, before you face a full-scale rebellion, this may be a good time to start thinking more carefully about building support for decisions that just a few months ago you were able to promulgate by fiat. The most important thing to remember about the support your staff gives you is that it arises more from emotion than from reason. Even if you can present a tightly reasoned argument about why your decision is good and why the staff should follow you, that may not be what you need in order to sway them. You will have to pay attention to your staff's feelings about several things.

■ Perhaps in the economic crisis you've gotten a little too used to being able to make choices and impose your will in a dictatorial style.

Self-interest. Clearly, people are most interested in how a decision affects them personally. If they feel that a decision will be good for the group but bad for them, they may resist. And resistance brought on by self-interest could be compounded if people feel that during the economic crisis they have had to accept things not in their short-term interest. If they suffered pay cuts, were forced to work more hours or got stuck doing distasteful work because the staff was thinner, they may be looking for payback now that things are getting better.

Group benefit. Though self-interest trumps this, people also care about the effect a decision will have on the group. Not many are willing to subordinate their own self-interest to the good of the overall group. But most people most of the time are going to want to see both a group and an individual payoff.

Fair process. In most cases, it is easier to build support for a decision as it is being made than it is after the fact. When it comes to especially difficult decisions, everyone knows that there will be winners and losers — that's why the decision is difficult. But those who are among the losers will have a much easier time accepting the decision if they feel that their case was heard and everyone's perspective was represented during the deliberation. If they lose fair and square, they are more likely to support the outcome, even if they don't like it.

So remember that your days of just telling people what to do are numbered and that you need to build support if you want your orders to be transformed into action. And getting support during good times is much harder than it is in times of crisis. ■

Paul Glen *is a consultant who helps technical organizations improve productivity through leadership, and the author of the award-winning book* Leading Geeks *(Jossey-Bass, 2003). You can contact him at info@paulglen.com.*

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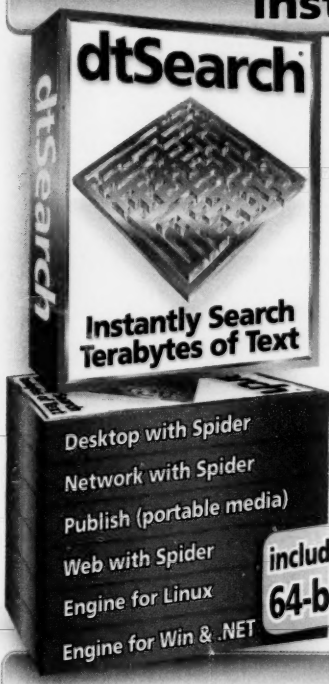

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Career Watch

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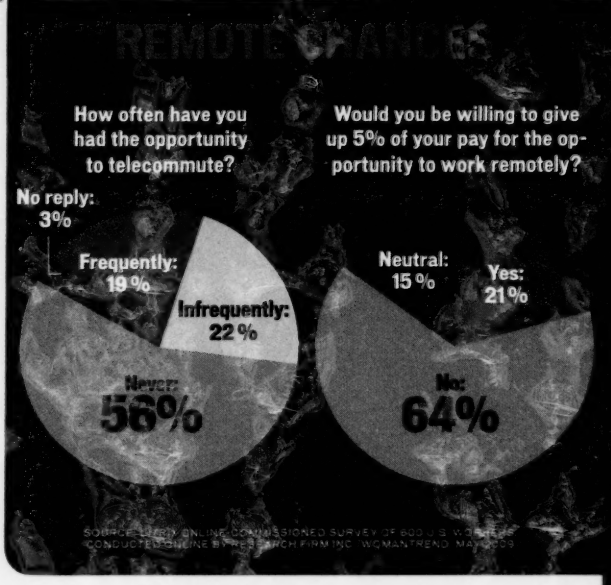
■ Q&A

Bob Jennings

The co-author (with J. Barry Griswell) of **The Adversity Paradox** thinks this recession could be a good thing for the millennial generation.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Neutral: 15%
Yes: 21%
No: 64%

How do you put a positive spin on this devastating economic disruption? We don't underestimate the gravity of the situation for millennials. After coming of age in prosperous times, the economic downturn really pulled the rug out from under them. The jobs they were promised are now few and far between, and because of their lack of experience, they're among the first to be laid off and the last to be hired. Further, because they've largely been untested by adversity, many lack the skills necessary to weather lean economic times.

Still, we do think the recession could be a blessing in disguise for this generation. Facing and overcoming adversity has a way of bringing out extraordinary qualities and abilities in people that would've otherwise lain dormant. Millennials are already highly skilled, well educated and very creative. They're technologically proficient and perfectly at ease living in a world "flattened" by the forces of globalization. With this kind of capability already in place, think of the potential for growth if this generation befriends adversity and uses it as a springboard to greater success. Undergoing adversity is never pleasant, but there's no more powerful force to catalyze lasting positive change.

But it must take more than adversity to make one prosper. Not everyone who lived through the Great Depression became a successful entrepreneur. True. The key lies in how one chooses to react to adversity. The point of our book is not that adversity automatically creates success, but that the experience of *overcoming* adversity teaches you skills you wouldn't otherwise learn and brings out strengths you wouldn't otherwise know you had. Adversity may not be a welcome teacher, but it's an extremely effective one. Failures and setbacks have a way of bringing out the best in us that successes, sad to say, do not.

Some people crumble in the face of adversity, but there are plenty who meet it head-on and make a point of learning from every obstacle and setback they encounter. Our focus is on that latter group. Why is it that some people can come back from poverty, bankruptcy, serious health challenges, limited access to education or any other adversity and thrive, while others give up at the first sign of trouble? Part of the answer lies in attitude. The power of positive thinking is not a new concept, but it's key to productively dealing with adversity. Instead of giving up or focusing on everything that went wrong, optimists take stock of the situation, quickly identify where they went awry, and determine how they can move forward in a positive way.

How does one go about turning a career setback like a layoff into an advantage? First of all – and here's the power of positive thinking at work – think of a layoff as an opportunity, not a setback. Is a layoff a serious challenge? Of course. But you won't get anywhere by focusing on the negatives or feeling sorry for yourself. Look at a layoff as a unique opportunity to open a new door. Maybe this is the time to take your career in a brand-new direction. Recessions have spawned many an entrepreneur, and some of the world's biggest companies were launched in the midst of economic downturns. What better way to turn lemons into lemonade than to launch the next Microsoft, FedEx or Disney?

– JAMIE ECKLE

To read the full interview, go to *computerworld.com/more*.

PAGE COMPILED BY JAMIE ECKLE.

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Shark Tank

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Welcome Back

While this pilot fish is on vacation, new card-reader door locks are installed at her company. Fish's first task when she returns: Configure the locks. "The vice president hands over a handwritten paper with the info on employee door access and times," says fish. "The VP promptly takes a week's vacation. The day the system goes live, the employees are standing in front of me yelling because their cards won't let them in the door they want to use. They now have to use the main door instead. The VP comes along hearing all the complaints, then starts yelling at me that this is not the way it should be set up. I promptly pull out his handwritten instructions. He looks at it and says, 'That's not my handwriting!' "

Always Glad to Help

Pilot fish gets tapped to install a secure version of FTP on a very busy FTP server. "The new install will require some downtime for a reboot and during configuration," says fish. "In the process of working with various groups to schedule the downtime, one particular team leader is a bit inflexible. He insists that his systems use the FTP server all day and all night; the only possible window for this installation is between 1 a.m. and 3:45 a.m. Another stakeholder suggests doing the work on a weekend, to which everyone quickly agrees – except the team leader, who still insists that the stated window is the only time that the install can be done. So I try another tack, sending this e-mail: *If the early morning is our only window, and jobs cannot be paused or held, then we'll do what we have to do. However, if I install this and set it up during this quiet time, it will have to be tested before the jobs begin again at 3:45 a.m. Someone on your team will have to do that.* To which the team leader responds: 'I have found another FTP quiet period: every Sunday from 8 p.m. to 11:59 p.m. Hope this helps out!' "

Irretrievable, Really

User comes to this support pilot fish complaining that his PC is "acting strangely." "It turns out he had gotten his computer so jammed up with spyware and Trojans that it was basically nonfunctional," fish grumbles. "We had to rebuild the computer from scratch. We were able to recover much of his work and files, but some were irretrievably damaged – or just plain gone. Afterward, I gave him an explanation of what had happened and explained that we had recovered as much as we could but that some stuff was simply gone. There would be no way to get anything more. Two days later, he called to ask when I was going to bring him the rest of his missing files."

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■ OPINION

Sharon Machlis

I've Looked at Code From Both Sides Now

FOR A LONG TIME NOW, I've been one of those power users who are either fun to work with (no need to explain painfully obvious basics to me) or a developer's nightmare (two words: scope creep). Lately, though, I've been dwelling on the other side, actually developing a database project to be used by several dozen of my colleagues.

While I've coded internal tools before, those have typically been along the lines of: "Here's what I came up with. Like it?" This one is an official project, complete with requirements and meetings and, yes, change requests. And there's nothing like living someone else's job for a while to truly understand that a request for just one more "little tweak" doesn't seem so minor to a bleary-eyed coder who's just finished a 4 to 8 a.m. coding session.

If you're nodding your head in agreement here, though, I feel compelled to point out that it may have been quite a while since *you* were on the other side, the side that most users (including me) usually inhabit: having great need for improved technology to boost efficiency but little ability to make it happen.

That feeling of powerlessness is something I've got to keep in mind now when users come up with some great new feature for my little project. Sharon the editor would be agreeing with an idea for expanded functionality, and very possibly chiming in with an addition of her own. We users have a lot of work that needs to get done, and the ability to perform tasks in an easier, more elegant or less taxing manner is extremely appealing. And since we can rarely code systems on our own, we often feel at the mercy of outside forces when we're told, "No, you can't have that."

Sharon the developer still says "Sure, no problem" to some ideas. But other times, after realizing the amount of work involved, it's tough to keep from blurting out, "Are you kidding? No!" What Sharon the coder needs to remember is that Sharon the user's requests aren't aimed at generating yet more hours of work for the development team. Often, I come up with new ideas for project features because I've bought into the usefulness of the original idea. And usually I have no way of knowing whether a suggestion represents a relatively easy add-on or a nightmarish week of more work.

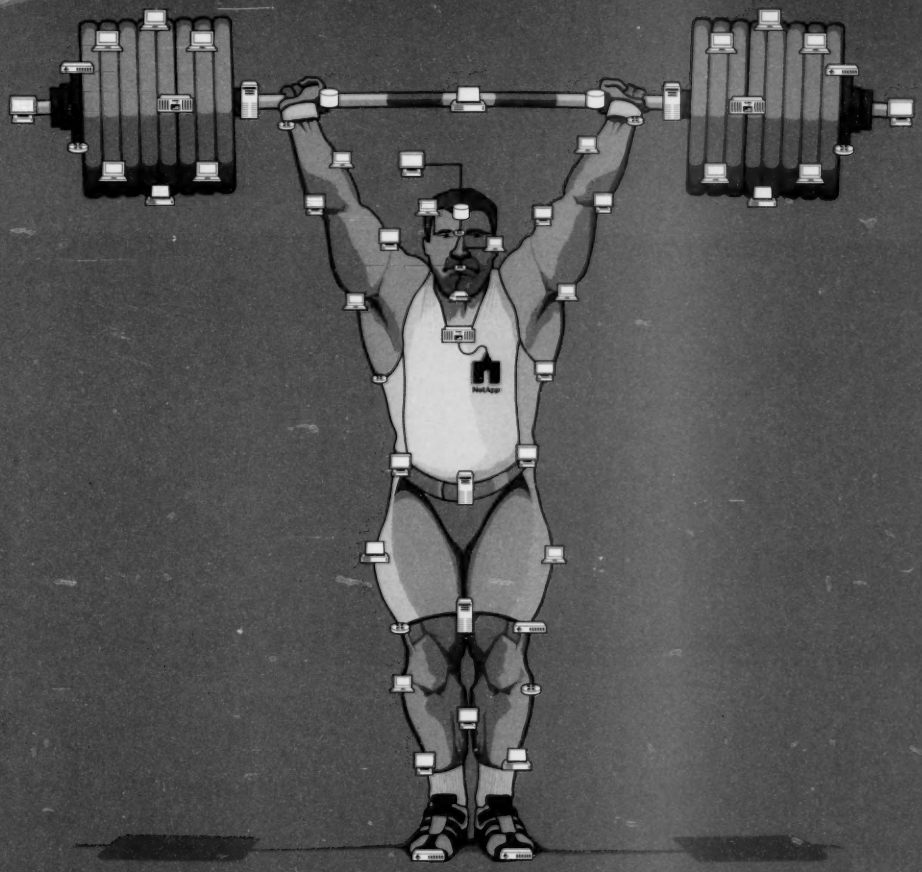
■ Sometimes Sharon the coder just wants to tell Sharon the user to go away.

From my temporary perch astride two worlds, I've rediscovered the importance of communication. Users making requests often don't differentiate between "This would be nice" and "That would save us hundreds of hours over the course of a year." On the other side, tech teams usually have good reasons for saying yes to some requests and no to others. But if developers only say things like "You should have thought of that earlier" or "We're too busy" — and if they don't occasionally say yes or offer reasons for saying no — users will just get frustrated. Users get cranky when we feel we have no control over the outcome.

Developers do too, of course, which is why it's so important not only to communicate in some way, but to make sure messages are understood and not simply received. Some advice that writers learn in journalism class is equally useful for project teams: Show, don't tell. Or as Matt Wait, key developer for the Pulitzer Prize-winning political database Politifact, says: Demos, not memos.

This Journalism 101 idea is something I've needed to relearn during my brief coding stint. Not everyone can grasp the advantage of putting information in a database instead of e-mail or a free-form text document. Actually demonstrating the slicing-and-dicing capabilities of a database can get more people enthusiastic about its potential. And that's a good thing — even if it means a slew of additional requests for new features. ■

Sharon Machlis *is* Computerworld's *online managing editor. You can reach her at smachlis@computerworld.com and follow her on Twitter at sharon000.*



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